UNDERSTANDING SURGICAL CRAFT IN THE CHANGING CONTEXT OF TECHNOLOGY, TRANSFORMATION OF HEALTHCARE AND MARKETIZATION: A CASE STUDY ON SURGEONS IN ISTANBUL, TURKEY

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ABSTRACT

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This dissertation aims to understand surgical work as a craft and explore how surgery maintains its craft character in the face of transformations in medical technologies and the social organization of healthcare. A conceptual framework that defines the basic components of surgical craft is developed for this aim. Based on this conceptual framework, the interaction between surgical craft and technology is investigated in the context of surgery's relations with the state, market and patients. Contemporary Turkey provides a significant case where the transformation of the healthcare system and the general trend toward the marketization of health as well as intensive investment in medical technologies are observed. The field research conducted in Istanbul as part of the dissertation includes in-depth, semi-structured interviews with twenty-six surgeons from six different surgical branches as well as observations in hospitals and operating theaters. The findings of the study indicate a

generational differentiation among surgeons regarding their adaptation to new technologies and a variation in the ways surgeons adopt, resist or cope with the transformations in their relation with the market, state and patients.

Keywords: Craft and Craftsmanship, Surgeons and Surgery, Medical Technology, Transformation of Healthcare, Medical Profession

ÖZ

CERRAHLIK ZANAATINI DEĞİŞEN TEKNOLOJİ, SAĞLIKTA DÖNÜŞÜM VE PİYASALAŞMA BAĞLAMINDA ANLAMAK:
İSTANBUL'DA CERRAHLAR ÜZERİNE BİR ÇALIŞMA

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Bu tez çalışmasının amacı cerrahiyi bir zanaat olarak anlamak ve tıp teknolojilerinde ve sağlık hizmetlerinin toplumsal örgütlenişinde yaşanan dönüşümler karşısında zanaat niteliğini ne ölçüde koruyabildiğini araştırmaktır. Bu amaçla cerrahlık zanaatını temel bileşenlerini tanımlayan bir kavramsal çerçeve geliştirilmiştir. Bu kavramsal çerçeve temelinde cerrahlık zanaatı ile teknoloji arasındaki etkileşim cerrahinin devlet, piyasa ve hastalarla ilişkisi bağlamında incelenmektedir. Çağdaş Türkiye sağlık sisteminin dönüşümü ve genel olarak sağlığın piyasalaşması eğiliminin yanı sıra tıp teknolojilerine yoğun yatırımın gözlendiği önemli bir örnektir. Tez kapsamında İstanbul'da yürütülen saha çalışması altı farklı cerrahi branştan yirmi altı cerrahla yapılmış derinlemesine ve yarı yapılandırılmış görüşmeler ile birlikte hastane ve ameliyathane gözlemlerini içermektedir. Çalışmanın bulguları yeni teknolojilere uyum sağlama bakımından cerrahlar arasında kuşak farklılaşması olduğunu; devlet, piyasa ve hastalar ile ilişkilerindeki

dönüşümler karşısında ise cerrahların uyum sağlama, direnme veya baş etme biçimlerinde çeşitlilik sergilediklerini göstermektedir.

Anahtar Kelimeler: Zanaat ve Zanaatkarlık, Cerrahlar ve Cerrahi, Tıp Teknolojisi, Sağlık Hizmetlerinin Dönüşümü, Doktorluk Mesleği

to Yetkin and Umut…

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LIST OF ABBREVIATONS

CT	Computerized Tomography
CVS	Cardiovascular Surgery
GS	General Surgery
HTP	Health Transformation Program
ICT	Information and Communication Technologies
MIS	Minimally Invasive Surgery
MoH	Ministry of Health
MRI	Magnetic Resonance Imaging
NHS	National Health Service
NS	Neurosurgery
OBG	Obstetrics & Gynecology
ORT	Orthopedics
OT	Operation Theatre
URO	Urology
WB	World Bank

CHAPTER 1

INTRODUCTION

My interest in surgery was motivated by both curiosity and personal experience as a patient. Some years ago, following an accident I was hospitalized and underwent two operations. Before the second operation, I had to wait at the operation theatre (OT) for an hour and I found myself observing my surroundings, the mysterious OT environment, and the medical staff walking around in green uniforms, white masks, and gloves. As a patient, I was supposed to be unconscious, and not able to observe the environment, as the doors to the *ameliyathane* (OT) are strictly closed to us, the lay public. The strictly regulated atmosphere with complex hierarchy and division of labor among surgeons at various levels and the others, the use of highly advanced technological equipment requiring unique skills, as well as the medical jargon used in there, all attracted my attention. This place, which was alien to me, was a work place for others, spending their working hours there on a daily basis. Following the operations, I had to visit the hospital regularly for seven months, 2-4 times a month, sometimes even more. In the process I developed a friendship with my surgeons and members of their teams, and the whole period became one of learning and observation. After my own experience, I had to continue a close relationship with hospitals and surgeons since my mother had to undergo a series of very serious operations in the timespan of 6 years. Eventually, I started observing and inquiring them about their working environment, conditions, the technological devices they use, the skills required and how they acquire them.

As I engaged in such a close interaction with medicine, I was also trying to devise a research topic for my dissertation. At the time I was planning to study on a topic that would bring concepts of work, technology and craft together; and surgery struck me as an interesting and challenging case for studying these concepts. Surgery is a science, a profession and a craft altogether; but at the end it is an occupation like all others. Yet, it is mostly difficult for most people to think of surgery as an ordinary occupation. Part of this is of course due to the fact that surgeons –at least in a significant part of their time- are dealing with life or death issues. Many things can be said about the mysterious side of surgery. It is common for those outside the profession to wonder how one can cope with the emotional tensions involved in surgery –such as the sight of blood and wounded bodies, the possibility of witnessing death and even being responsible for it- and how one can continue with the ordinary life after an operation. It is an occupation that requires an extraordinary commitment, as surgeons –at least during their training but also throughout their career for most of them- work for long hours daily, amounting to 80-100 hours a week. A part of this commitment is the long period of training required: A medical student can start to work as a full surgeon only after 6 years of basic medical education and 4-6 years of specialty training.

As I continued to investigate surgery as an occupation, I realized that it presented an interesting and puzzling case in the context of sociology of work. Historically, it is among the oldest crafts. Until the end of the 19th century it continued to be practiced as a traditional craft, but in an inferior status compared with the physicians. This inferiority was natural given the limited efficiency of the surgical techniques, as it could kill the patients more easily than healing them. It is with the scientific and technological breakthroughs of the 20th century that surgery has turned into a respectable and successful field of medicine.

The evolution of surgery in line with the technological advancements gained further speed after 1950s, with the introduction of electronics, computers and video technologies. This turned surgery into a puzzling case with regard to the dissolution of crafts in the face of technological developments since the industrial revolution.

Surgery became more and more technology-intensive, but this has not led to the disappearance of its craft character. This could be seen as the underlying reason for the perception of surgery –by both the surgeons themselves and by the lay public- at a higher status compared to other branches of medicine. Surgery is fascinating in the eyes of the lay public, both because of its contact with the body –opening and closing the body, manipulating and modifying it- and its intensive use of technology.

Surgery has, until now, resisted to the well-established correlation between the development of technology and the demise of crafts. The basic features of a craft, such as the use of hands, the master-apprentice relationship and the unity of mental and manual labor, continue to characterize surgical work. From the most basic tasks, such as suturing, to the most complex tasks involving the use of robotic equipment, the surgeon's use of hands is indispensable. Indeed, it is common among surgeons to speak of their work as craft or art, as can be seen in the academic journals of medicine and surgery.[1]

A study of surgical work based on the concept of craft, therefore, seems reasonable and meaningful. Indeed, it is one of the claims of this study that employing a craft framework instead of the more common focus on the concept of profession could provide a broader perspective. First of all, it could be useful in determining the specific characteristics of surgery that differentiates it from other branches of medical profession. Secondly, by focusing on the actual tasks performed by surgeons on a daily basis, rather than the more organizational aspects of autonomy and power that defines the professional perspective, the surgical work could be better understood. Such an understanding can also be more useful in investigating the effects of technological changes on the work, as well as power and autonomy of the surgeons.

In a broader perspective, moreover, a successful application of the concept of craft in the analysis of the professional work performed by surgeons may prove the

[1] Indeed, the etymological origin of the word surgery is an illustration of this point. According to the Online Etymology Dictionary, surgery stems from the Greek Word "kheirourgos" which in turn means "working or done by hand". (http://etymonline.com/index.php?term=surgeon).

feasibility of using this concept in analyzing various types of professional work and provide insight on how craftwork continues its existence in today's world of high technology and post-Fordist capitalism. Rather than considering it as an obsolete category belonging to the pre-industrial times, it is the contention of this study that craftwork continues its existence in various forms, and various professional occupations of today's work contain elements of craftwork. Surgery presents an extremely interesting case in this respect, to repeat, as it maintains its craft character while also being technology-intensive and being performed in corporatized settings, administered by complex bureaucracies. Therefore, a study on surgical craft may offer insights on how features of craftwork can be observed in contemporary works.

Being directly related to the essence of human life, welfare and reproduction, medicine is a vital field of activity. In the context of our complex, modernized and highly technological societies, medicine or health denotes a complex system. The *state* occupies a central role in this complex, by performing various functions ranging from provision and financing of services to the regulation of the providers of such services, including the medical profession. In all countries, therefore, the state acts as an employer, purchaser or supervisor for the surgical craft. Private actors and *market* mechanisms are also influential, although their relative standing changes from country to country and in time. The actual beneficiaries of the surgical services are the *patients*. The doctor-patient relationship, which is also determined by the wider context, is a defining element of a surgeon's work. The surgical craft, as a result, is performed in a context that is composed of these three elements: State, market and the patient.

1.1 Statement of the Problem

In recent decades, surgery is facing comprehensive transformation in two dimensions. The first transformation is technological, which directly affects the way surgery is conducted inside the OT. This is related to the craft dimension of surgery because it affects the skills required as well as the way those skills are acquired. The

transition to laparoscopic surgery has created a radical change in the skills required of the surgeons. The laparoscopic techniques have been increasingly influential in various –though not all- branches of surgery in the recent decades. The teaching of the new skills required by this new technique, moreover, impacted the training of new surgeons, with possible effects on the master-apprentice relationship. On a broader extent, the new imaging technologies and devices developed as a result of the new digital technologies have significantly affected the practice of surgery. These changes, therefore, provide a valuable case to study the impact of technological change on the surgical craft.

The second dimension is the general transformation of healthcare systems in neoliberal times. In recent decades, parallel to the trends of neoliberalism, globalization or post-Fordism, healthcare services are increasingly privatized, marketized or commodified in almost all countries around the world. Turkey is one of those countries that have undergone a radical transformation in health, initiated by the government, promoted by international actors, and supported by investors. Turkey thus provides a meaningful case to study how these changes are reflected in the surgical work and profession.

As a result, this study sets out to investigate the surgical craft in Turkey in three stages. The first stage includes the conceptualization of surgical craft and its observation in Turkey. Starting with the question of how to subject surgical work to a sociological analysis, the study sets out to explore the defining characteristics of surgical craft. The second stage is to investigate how the components of surgical craft evolve in relation to technological change. At the third stage, finally, the study relates the changing dimensions of surgical craft to the changes in the three elements of state, market and patient that together define the environment within which surgery exists. The questions that lead the investigation at this stage are how these changes reshape the profession, how surgeons adapt to these changes, and how the craft character of surgery determines the ways surgeons adapt.

1.2 Contributions of the Study

The concept of health is related to the most essential aspect of human life. In parallel to the advances in medical knowledge, topics related to health and medicine occupy an ever-growing place on the popular and political agenda. The health sector as an industry, on the other hand, is one of the biggest sectors globally. Huge amounts of money are spent annually for health expenditure (11,3% of Turkey's GDP in 2012) (OECD, 2013), and investments in medical technologies comprise significant amounts[2]. In Turkey, as well as in other parts of the world, the transformations in the provision, finance, and organization of healthcare services lead to significant changes for both patients and the health professionals. Surgery occupies a central place in all these topics, due to its intensive use of technology, the crucial role of surgical interventions in human life, and the high level of its costs. Surgeons, therefore, are affected closely by the advances in medical technologies, and by the changes in the healthcare systems, as well as the changes in the perception, attitude and preferences of the patients. Given the limited attention devoted to surgical profession –or absence of it- in the Turkish context, the current study aims to fill a void.

With regard to academic studies, the surgical craft could be considered at the intersection of various fields: Sociology of medicine, sociology of work and sociology of professions. Starting with Parson's famous concept of "sick role", for instance, the functions of the physician in the social system was subject to numerous studies in the structural-functionalist literature of the 1950s and 1960s (Parsons, 1951). The medical profession remained a central point of reference as an exemplary case in the sociology of professions. An outstanding conception in this literature was, for instance, that of "professional dominance" introduced by Freidson (1970b). The topics of health and illness, as well as the political economy of healthcare systems have been central issues covered widely in social sciences. Medical work has also been subject to sociological studies, with regard to the effects of technology, changes

[2] "Internationally, the medical device industry is large and rapidly growing. The market is valued at approximately US$300 billion a year globally and projected short-term market growth is estimated at 9 per cent a year." (DLA Piper, 2012: 3).

in management styles, or the organization of healthcare systems. Surgery as a branch of medicine, however, remained relatively less studied. Even in 1992, in the introduction to his study on the social aspects of surgery, Fox (1992) claimed that it was the first of its kind.

In Turkey, on the other hand, medicine has been for a long time an area of research almost exclusively reserved for medical historians, and for the Deontology departments at medical schools. In the recent ten or more years, however, there is a growing interest in the major topics of medical sociology. The prevailing topics in these studies revolve around healthcare policies (e.g. Ağartan, 2008; Belek, 2012; Elbek, 2013; Ertürk Atabey, 2012; Keyder et al., 2007; Soyer, 2007; Sönmez, 2011; Yenimahalleli Yaşar et al., 2015), sociology of health and illness (e.g. Erol, 2008; Kasapoğlu, 1999, 2008; Önder, 1998; Özen, 2008; Sezgin, 2011; Terzioglu, 2008), and to a lesser extent, the health professionals (Soyer, 2005), with a more recent work focusing particularly on the transformation of health labor process (Ulutaş Ünlütürk, 2011). Studies focusing specifically on surgeons or surgical work, however, are non-existent, as far as I have detected.

By focusing exclusively on surgery, and applying the concept of craft in order to study surgery's interaction with technology and society, the study aims to make contribution to sociological study on various levels.

First, the study aims to contribute to the recently burgeoning literature on professional work in Turkey. Sociology of professions has been an underdeveloped topic in Turkish sociology,[3] while some recent studies are increasingly filling this gap, with new studies published on the profession of teaching (Buyruk, 2015; Durmaz, 2014; Yıldız, 2014); the profession of law (Akbaş, 2011; Cirhinlioğlu, 1997; Kalem Berk, 2013); midwives (Erkaya Balsoy, 2015; Beyinli, 2014); and medical professions (Demir & Kasapoğlu, 2008; Ulutaş Ünlütürk, 2011).

[3] Early exceptions are Ansal, 2000; Köse & Öncü, 2000; Göle, 1998.

Secondly, the study aims to contribute to the debates on the transformation of healthcare in Turkey. This has been a topic that has been widely debated in Turkey, with various aspects related to the reform program launched by the government since 2003; the wider context of marketization; the increasing consumerist attitudes among patients, and so on. The timing of the field study allows it to contribute to this literature. The surgical craft is studied at a time when the healthcare system has been undergoing a comprehensive transformation, and the impacts of this transformation are experienced daily by the surgeons interviewed. The reform policy and the marketization process have been researched in various aspects, but this study is original in the sense that it focuses on the surgeons as a separate group of health workers. This is expected to provide a different perspective by emphasizing the possible variations among different categories of health occupations in their interactions with technological and social changes.

On a more conceptual level, by conceptualizing surgical work as a craft, this study aims to explore the insights that the concept of craft could offer for the sociological analysis of work and professions. The concept of craft is usually taken as referring to an obsolete form of work that no longer exists, or exists only marginally, yet it is the contention of this study that surgical work would be incomprehensible without referring to this concept.

Finally, given the level of development of surgery and surgical technology used in Turkey, the findings of such a study could also be considered meaningful more generally, beyond the boundaries of Turkey. The international career of some of the interviewed surgeons and their level of academic and professional experience also support this aspect.

1.3 The Organization of the Study

Following this introductory chapter, the following two chapters will define the theoretical and conceptual framework of the study. The first chapter is titled “Craft,

Technology and the Surgical Craft" and consists of two parts. The first part provides an outline of the historical evolution of the interaction between craft and technology through a summary of the theories and concepts developed in the sociological literature. A description of craft in its pre-modern context is followed by its transformation in the wake of the industrial revolution, with particular emphasis on Marx's analysis of this process. The processes of mechanization and automation that characterize the production process in the 20th century are described, as well as the organizational changes introduced by Taylorism and Fordism. With regard to the changes that have occurred since 1950s, the debates surrounding the concepts of labor process, skill and post-Fordism are discussed. Against this background, the second part of the chapter will develop the concept of surgical craft and define its components, after providing an outline of the historical evolution of surgery. In order to account for the puzzling relationship between surgical craft and technology, this conceptualization will be further elaborated and developed into defining surgery as a *technology-driven craft*.

The next chapter will focus on surgery's interaction with the state, the market and the patients. The changes in the relative positions of state and market in the healthcare sector will be discussed by summarizing the trend of change from the provision and funding of healthcare services in a welfare framework, in which health is recognized as a right, to the marketization and privatization of these services, whereby health is increasingly commodified. The changing role and influence of the patient will be similarly discussed, and the concepts developed to explain this will be outlined – particularly the sick role defined by Talcott Parsons, the professional dominance thesis of Eliot Freidson and more recently the emergence of consumerism in health and medicine. Based on these outlines, an analytical framework consisting of the three components of state, market and the patient will be defined. The final part of the chapter will summarize the reflection of this three dimensional framework in the case of Turkey and describe the context in which the field study is designed.

The fourth chapter will be the methodology chapter, in which the conceptual framework used in the study will be summarized, the methodological approach

explained, as well as the stages of selection of surgeons to be interviewed, the characteristics of the surgeons interviewed, the collection and analysis of data and the limitations of the study will be mentioned.

In the remaining part of the dissertation, the findings of the field study conducted in Istanbul will be presented. The analysis will be conducted in three stages. The first part, presented in Chapter 5, will assess to what extent the components of the surgical craft offered in Chapter 2 are observed in the field study. This part will assess the convenience of the conception of surgical craft offered, as well as demonstrating the possible changes in each component. The second stage of analysis will be the topic of the next chapter, in which the impact of technological change on the surgical craft will be analyzed. The introduction of digital imaging technologies and minimally invasive surgical procedures, and the increasing trend toward sub-specialties will provide three topics in which the impact of technological change becomes visible.

The final part of the analysis will connect the changes observed in chapters 5 and 6 with the transformations in the healthcare sector and the attitudes and expectations of patients. Presented in Chapter 7, this part will summarize how the surgeons reflected on the impact on their craft of the changes associated with state, market and patient. Combining these with the remaining findings of the study, a typology of surgeons with regard to their attitudes in the context of the changes in both the technological and social context of their craft will be presented.

The dissertation will be completed with a conclusion chapter, in which the whole process of research, its findings and the implications of these findings for other debates and for future studies will be discussed.

CHAPTER 2

CRAFT, TECHNOLOGY AND THE SURGICAL CRAFT

In many cases, craft is considered only with regard to its dissolution; and very rarely as a contemporary issue. Dissolution of craft was a central feature in Marx's analysis of the emergence of capitalist mode of production, as well as in Braverman's argument on the de-skilling effects of automation. The debate on alienation revolved around the concept of *skill*, while what was meant by skilled work could easily be expressed as craftwork. The concept of craft somehow maintained its existence, but remained mostly as a marginal concept in the background, as an alternative to the alienating effects of capitalist forms of work –either as an element of nostalgia or utopia. When used in empirical studies, it mostly referred to those traditional handicrafts which continued to exist as a marginal element of contemporary economy, or as part of artistic production. In the latter case, the debate around the definition of craft revolved around its differences from or similarities with fine arts. In popular usage, on the other hand, craft is used in many contexts, with definitions emphasizing handwork or referring to simply all sorts of occupations.

In an industrial society in which production is carried out by a combination of unskilled, semi-skilled and skilled workers, and where occupations are divided on the basis of the education they required (professional or not), the concept of craft seems to have no place. Yet, on a closer look, many occupations continue to include certain characteristics of craftwork. Furthermore, the concept of craft retains its importance

by providing a criterion between alienating and non-alienating forms of work. In this sense, the concept of craft serves both analytical and evaluative purposes. In the case of surgical work, moreover, the surgical profession has its roots in the crafts of the pre-modern era. More interestingly, surgery continues to be defined as a craft, primarily by its practitioners, as a craft despite the increasing role of technology.

This chapter is composed of two parts. The first part provides an overview of the transformation of work in the modern era, with particular emphasis on the concept of craft. The dissolution of crafts in the wake of the industrial revolution, the evolution of the man-machine interaction afterwards, its reflection in the social organization of work are the topics summarized with reference to the sociological concepts and theories developed to explain these processes.

In the second part of the chapter, the surgical craft is conceptualized with reference to definitions of craft and studies on the characteristics of surgery and surgical work. The historical evolution of surgery is outlined in order to emphasize the defining impact of technological developments in surgery's ascendance as a prestigious branch of the medical profession. A review of the social scientific literature on surgery is provided. This is followed by a section that outlines the conceptual framework developed in this study to define the surgical craft. The final subsection of the chapter elaborates this definition in order to include the intense interaction between the *surgical craft* and technology, and describes the technology-driven character of this craft.

2.1 Craft and Technology

For sociology, *craft* is both a well-known, and supposedly an outdated concept. Sociology considers itself as the study of modern society, and craft is generally considered as a feature of the pre-modern era.[4] This may be the reason why craft has

[4] The concepts of modern, capitalist, and industrial are used interchangeably throughout the study.

not been subject to extensive consideration and theorization in sociology, particularly when compared with the attention it received in other fields such as philosophy, fine arts, modern arts, or aesthetic theory.[5] When considered in sociology, it is mostly in the context of the social order and organization of work in the pre-modern era.

The Oxford Dictionary defines craft as "the skills in carrying out one's work", "work or objects made by hand".[6] The definition offered by Merriam-Webster includes "skill in planning, making, or executing", and "an occupation or trade requiring manual dexterity or artistic skill".[7] Craftsman is accordingly defined as "one who creates or performs with skill or dexterity especially in the manual arts".[8] In Diderot's definition, in his *Encyclopédie* (1751-1780), craft refers to "any profession that requires the use of the hands, and is limited to a certain number of mechanical operations to produce the same piece of work, made over and over again" (as cited in McCullough, 1996: 12).

As reflected in these definitions, the major characteristics of craft include the element of "doing with hands", and the requirement of "skill" and "dexterity". Due to the complicated nature of the skills involved, the acquisition of these skills requires a relatively long period of training: Hence the apprentice-journeyman-master sequence. This sequence also implies a social organization based on a strict hierarchy. The work is carried out by the three categories of workers working together: The master is the most qualified, most experienced, and has the most skillful hands, while the journeyman and the apprentice need to spend long hours and years working alongside the master before they acquire the same title. However, a significant point is missed in all these definitions. When focused on the features of

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[5] See Adamson, 2007, 2010; Dormer, 1997; Risatti, 2007; Rowley, 1997.

[6] http://oxforddictionaries.com/definition/english/craft?q=CRAFT

[7] Craft. (2013). In Encyclopædia Britannica. Retrieved from http://www.britannica.com/bps/dictionary?query=craft

[8] Craftsman. (2013). In Encyclopædia Britannica. Retrieved from http://www.britannica.com/bps/dictionary?query=craftsman&header_go=

making by hand, skill and dexterity, as in Diderot's definition, the mental and conceptual effort involved in the practice of craft may be ignored. Indeed, it is the unity of mental and manual labor, the conception and execution, or the design and production, which constitutes the defining characteristic of craftwork. The industrial era or the capitalist mode of production is based on the separation of conception from execution, or the mental from the manual. With this separation comes the division of labor specific to mass-production, whereby work is divided into smallest tasks.

In this section, history of craft in the pre-industrial era and its dissolution in the industrial times will be summarized. The transformation of work with the emergence of industrialization will be summarized in subsequent subsections, following a chronological order. The subsection on "Man and Machine" deals with the techniques of mass-production, focusing on the advent of Taylorism and automation. In the following subsection, the debate on labor process and the concept of skill that emerged in the 1970s will be reviewed. The next subsection presents a review of the new developments which are collected under the title of post-Fordism.

2.1.1 Crafts in Pre-Industrial Times and the Age of Industry

> *Sing clear-voiced Muse, of Hephaestus famed for skill. With bright-eyed Athena he taught men glorious crafts throughout the world —men who before used to dwell in caves in the mountains like wild beasts. But now that they have learned crafts through Hephaestus famous for his art they live a peaceful life in their own houses the whole year round.*
>
> (Homeric Hymn to Hephaestus by Hesiod)

Ancient Greece and the way craft was conceived in that period are usually taken as a starting point in all accounts of the history of craft. There is even a specific figure in the Greek mythology representing the craftsmen: Hephaestus, the god of technical functions. While the assignment of a particular God for this activity is a sign of its importance, Hephaestus "was unlike the other gods, a lame and misshaped being"

(Austin & Vidal-Naquet, 1977: 13). It is through the crafts taught by Hephaestus that men could "live a peaceful life in their own houses the whole year round." (Sennett, 2008: 21). Again in the same period, Xenophon described the craftsman as "(…) a man who practices many crafts to do everything well", giving it a broader meaning beyond doing things with hands (Austin & Vidal-Naquet, 1977: 172). In this period, the word used for "craftsman" is *demioergos*, which is a combination of *demios* (public) and *ergon* (productive) (Sennett, 2008: 22). In the classical period of Ancient Greece, however, crafts were regarded with lesser importance. Aristotle, for instance, considers architects with higher skills compared to craftsmen, since they "are more estimable and know more and are wiser than the artisans, because they know the reasons of the things which are done" (Sennett, 2008: 23).

The emergence of guilds in the Medieval Ages was important, defining a more central role for the crafts both in the organization of labor, and within the general society. The guilds, first of all, institutionalized how craftsmen worked, defining a division of labor among the master, the journeyman and the apprentice. They kept the secrets of the crafts, ensuring each member took an oath (Epstein, 1998: 694). Medieval goldsmithing provides a good example to see how this worked:

> The apprentice goldsmith was place-bound while learning how to smelt, purify, and weigh precious metals. These skills required hands-on instruction from his master. Once the apprentice had locally presented his chef *d'oeuvre*, however, he could move from city to city as a journeyman, responding to opportunities. The traveling goldsmith journeyman made his presentation *élevé* to the corporate body of master craftsmen in foreign cities. Through his managerial talents and moral behavior he had to convince these strangers that he could become one of them. (Sennett, 2008: 58-59)

A typical apprentice would start working with a master at around 12 years of age, becoming a journeyman after 7 years, and working as a journeyman for five years. Finally, at around age 25 he could become a master, and would be able to open his own workshop at around 30 (Marchese, 2008: 21). Apprenticeship provided training, but it also enabled young people to be "closely controlled during the years before they had acquired sufficient discretion and wisdom to govern themselves and establish their own households" (Woodward, 1995: 53).

This system also provided the masters with a significant amount of cheap labor. In this sense, craftsmanship could also be considered as a proto-capitalist mechanism, and why the craftsmen did not turn into capitalists has been a topic of debate in historical studies of capitalism. According to Marx (1982), it was the guilds that prevented such a transformation, by restricting the number of apprentices and journeymen that a master could employ, as well as the tasks they could be employed for. By keeping the merchant capital out, the guilds also did not allow merchants to "buy labor as a commodity" (p. 479).

Throughout these ages, the goods produced by the craftsmen constituted a significant part of the economic activity. When looking at how work was performed, most striking point is the togetherness of mental and manual labor. In the unity of these, the craftsman carries out all stages of the production process –from the designing of the product to the selection and provision of material- and produces in a small scale. That the products of the craftsman are unique, not standard, distributed in a certain market, and that crafts are organized as guilds are among the defining characteristics of production in the era before the Industrial Revolution.

In this period, performing craftwork included more than doing a job; first of all, the craftsmen are not wage-earners, this is a style of life and a form of social existence. The application of mastery on the product through skillful hands, the transfer of this mastery to next generations through apprenticeship, the ability to judge and decide for changes in the design of the product, the togetherness of mind and hand, all these constitute the process that leads to the uniqueness of the product.

It is essential to comprehend the craft guilds to grasp the system of craftsmanship in medieval times, since they occupied a central position in medieval life:

> The model craft guild, maintaining standards and a sense of professional pride, permitting all to work their way up from apprentice to master, allowing masters and journeymen to work side by side, invoking the comforting patronage of a stint, helping the poor and sick among its members, and combining economic functions with religious and convivial ones, must have produced a very different attitude to work from that to be found today in a large factory or steel works. (Thomas, 1964: 55)

Craft guilds were associations in the medieval period, comprising a harmonious group of people who directed a particular industry. In other words, “guild was a craft organization, a proto-union controlling medieval professions and craftsmanship” (Cosman & Jones, 2009: 193). From this perspective, the guilds could be considered similar to today's professional organizations. Historically, the roots of the idea of guilds go back to the ancient times. There were even guilds that existed from ancient times to the Roman era, and later during the medieval era. However, significant increase in their number and influence in Europe occurred in medieval times, when industries and crafts underwent a swift process of specialization. For example, while an ordinary European in 500s worked in an occupation such as a farmer, hunter or warrior, by 1500 there were hundreds of different skilled or unskilled professions and occupations in the city and the countryside. New occupations in various new areas emerged, such as pin makers, carpenters, masons, shoemakers, cloth makers, blacksmiths and buckle makers. The development of cities was also a factor, since it allowed guilds to gain influence. Guilds protected the rights and interests of their members, and as they increased their profit and influence in the local government, they also gained autonomy from the powerful lords ruling the cities (Jovinelly & Netelkos, 2006; Johnston, 2011).

A significant transformation occurred in trading guilds during the 15th and 16th centuries. While many of the trading guilds faded in this period due to various factors, such as “increase in the size of the market, the accumulation of capital, the guilds of surgeons (as well as apothecaries and notaries) remained. They were even strengthened as their “professional techniques developed” and “they retained their validity” (Carr-Saunders & Wilson, 1933: 294).

Mastery meant the highest level in this guild structure; they were extremely skillful, experienced and trained. They used various tools masterfully to perform their craft work. They were people who transmitted their whole knowledge, skill and experience into the product, and were almost obsessive to make their creations perfect. What was embodied in the final product was this unity of theoretical and

practical knowledge. The work and the structure was a source of pride for them. This search for perfection is succinctly stated by Babbage (1832):

> The amount of patient thought, of repeated experiment, of happy exertion of genius, by which our manufactures have been created and carried to their present excellence, is scarcely to be imagined. (…) In the art of making even the most insignificant of them, processes calculated to excite our admiration by their simplicity, or to rivet our attention by their unlooked-for results. (p. 3)

Skilled professions in towns were configured into guilds. These associations could help and protect their members as well as setting professional standards. Guild members had to get "certification of competency". Guilds were demanded with occupational training, licensing and regulating practitioners of each craft. Furthermore, guilds had a very masculine character (Cosman & Jones, 2009: 193; Johnston, 2011: 305). With regard to the rules and relationships within the guilds, they also functioned as a model for workplaces that would emerge later. According to Durkheim, for instance, the medieval guild was an example “of the kind of occupational group (…) in which "professional ethics" could develop without state coercion on the basis of moral standards engendered within the group itself" (Black, 2009: 13).

The guilds provided protection for the craftsmen in different branches. Gathered under a single roof, craftsmen were protected against possible violations of their rights or against frauds; and they were also subject to sanctions. For instance:

> The test of pure gold was made by "six of the more discreet goldsmiths," who went about and superintended the amount of alloy to be employed; "gold of the standard of the touch of Paris" was the French term for metal of the required purity. Any goldsmith using imitation stones or otherwise falsifying in his profession was punished by imprisonment and by ransom at the King's pleasure. (Addison, 1908: 2-3)

In the long but extremely helpful quote given below, Marx (1982) outlines the defining characteristics of craft production and the guilds, and the similarities with and differences from the capitalist mode of production:

> The medieval guild system, of which analogous forms were developed to a limited extent in both Athens and Rome, and which was of such crucial importance in Europe for the evolution of both capitalists and free labourers, is a limited and as yet inadequate form of the relationship between capital and wage-labour. It involves relations between buyers and sellers. Wages are paid and masters, journeymen and apprentices encounter

> each other as free persons. The technological basis of their relationship is handicraft, where the more or less sophisticated use of tools is the decisive factor in production; independent personal labour, and hence its professional development, which requires a longer or shorter spell as an apprentice- these are what determine the results of labour hour. The master does indeed own the conditions of production –tools, materials, etc. (although the tools may be owned by the journeyman too) and he owns the product. To that extent he is a capitalist. But it is not as capitalist that he is master. He is an artisan in the first instance and is supposed to be a master of his craft. Within the process of production he appears as an artisan, like his journeymen, and it is he who initiates his apprentices into the mysteries of the craft. He has precisely the same relationship to his apprentices as a professor to his students. Hence his approach to his apprentices and journeymen is not that of a capitalist, but of a master of his craft, and by virtue of that fact he assumes a position of superiority in the corporation and hence towards them. (p. 1029)

The Industrial Revolution is considered as the major turning point, whereby craftsmanship, with its long-established traditions, was overthrown and displaced. The high-scale, high-volume production of cheap products of industry replaced the high-quality, small-scale production of crafts, with factories replacing workshops. When the major means of producing goods changed, the craftsmen were either marginalized or forced to become wage laborers. The basic factor here was *mechanization*, which meant that the repetitive tasks of production previously performed by artisans could now be performed by the machines with more speed, volume and precision, even though with lower quality. This, in turn, meant that fewer skills were required from the producer, who would be a part of the mechanic production process. As unskilled workers did not require long periods of training, the basic apprenticeship of craftwork was no longer needed.

Up until the 19th century, the words *industry* and *craft* had very similar meanings, both referring to the notion of *skill*. Industry used to mean "skill, dexterity, diligence, assiduity", while craft meant "power, strength or skill, evolving slowly into the ides of a specific trade or calling and spawning the more persistent notion of craftsman, probably sometime around the 15th century" (Cardoso, 2010: 322).

So, it is with the industrialization that these words gained contradictory meanings. For the industrial process relied on standardization, as detailed by Veblen (1902), and this was the opposite of craftsmanship which included "skill, reflection and individual elaboration" (p. 10).

In the late 18th and 19th centuries, the great transformations brought by the industrial revolution radically changed the ways of production; led to the emergence of factories in cities and the flux of people from the countryside to the cities. In terms of work, the changes were extensive. Together with technological innovations leading to mechanization, the organization of work within factories also brought significant changes. In the 40,000 years of human history, it was the first time that "paid employment" or "wage labor" emerged with the "industrial capitalism" (Edgell, 2006: 1). The shift from workshop to factory also required appropriate authority structures to be developed that would replace the traditional relationship of authority among the master, journeymen and the apprentices within the workshop (Clegg, 2006). Mechanization, rationalization of production processes and the emergence of factory identified the new era, in which the industrial capitalists had the upper hand:

> Industrialists were able to isolate the individual tasks needed for production and then hire workers each with just enough skill to carry out one or several of those tasks. The result was cheaper production of goods, a shift from human capital in the form of skilled craftspeople to industrial capital, and the effective end of many crafts except for highly specialized or artistic application. (Kritzer, 1999: 723)

The sociology of work is rooted in industrialization. The change from crafts to the modern organization of labor was explored by many prominent theorists and scholars, including Marx, Durkheim, Weber and Veblen. Weber, for instance, explains the modern organization of labor by contrasting it with the crafts. While each craft was specialized in the production of a single article, with the functions combined, the modern organization of labor is based on the specialization of functions "not oriented to the final product" (Weber, 1978: 119). The table below shows a summary of this historical development of work activity:

Table 1: Work in pre-industrial society compared with work in industrial capitalist society

Key Features	Work In Pre-Industrial Society	Work In Industrial Capitalist Society
1. Production system	Hand tools/Water/Human/ Animal energy	Machine tools/Inanimate energy (coal, gas, oil, etc.)
2. Unit of production	Family/Household	Individual adults/Organizations
3. Division of labor	Rudimentary/ Low degree of differentiation	Complex/High degree of differentiation
4. Time	Irregular/Seasonal	Regular/Permanent
5. Education and recruitment	Minimal/Generalized Particularistic/Family	Extensive/Specialized
6. Economic system	Traditional/Non-market	Rational/Market
7. Meaning of work	Necessary evil	Work as a virtue
8. Purpose of work	Livelihood/Subsistence/ Short-term Profit	Maximum reward/Income/ Long-term Profit
9. Payment	In kind/Cash	Wages/Salaries/Profits
10. Embeddedness of work	Embedded in non-economic institutions	Separate from other institutions

Source: Edgell, 2006: 8

These transformations were also reflected in the organized bodies of crafts. Crafts were traditionally organized in guilds, which provided them autonomy and functioned to limit entries to the market. In the modern era, to the extent that production relied on wage labor, the unions of the industrial age can be seen as their modern counterparts. Craft workers, however, continued their existence within factories, distinguished from the unskilled or less skilled workers, allegedly constituting a "labor aristocracy" (Baron & Bielby, 1982: 178). On the other hand, to

the extent that the professionals of the modern society can be considered as the modern counterparts of craftsmen, then the professional organizations can also be taken as modern counterparts of craft guilds (Krause, 1999).

In this new era, in summary, craft production and craftsmanship are among the institutions that underwent the most radical changes. Marx witnessed this newly emerging transformation and viewed the division and specialization of the production process from different perspectives. A summary of Marx's approach to this transformation of craft in relation with technological innovations is provided below.

In the center of Marx's analysis was the transformation of industrial relations; the radical change from craft to labor as commodity was crucial in this context. He theorized the modern society via the relationship between capital and labor. Marx's chief critique of work and labor appeared in his alienation thesis, which he regarded as both inevitable and universal in capitalist societies. Historically, Marx analyzed from wide perspective the meaning of work in the history of human development, as well as in the context of capitalist society. While doing this, he wrote extensively on the pre-industrial era, referring frequently to craftwork and craftsmanship; and provided a clear-cut description of the transformation:

> In handicrafts and manufacture, the worker makes use of a tool; in the factory, the machine makes use of him. There the movements of the instrument of labor proceed from him, here it is the movements of the machine that he must follow. In manufacture the workmen are parts of a living mechanism. In the factory we have a lifeless mechanism independent of the workman, who becomes its mere living appendage. (Marx, 1982: 548).

Marx (1982) considered three basic elements of labor process: "(i) Purposeful activity, that is work itself, (ii) The object on which that work is performed, (iii) The instruments of that work" (p. 284). Putting these elements in contrast with the defining characteristics of craft would demonstrate the extent of the shift clearly. Indeed, Marx gives a detailed explanation of the craft production, in order to explain how work was transformed in capitalism. Marx considers these "handicraft trades" as the earlier mode of production, and defines chronologically three forms of industrial organization: Handicrafts, manufacture, and large-scale industry (p. 385, 439). In the

pre-capitalist era, the organization of craft production is illustrated by the labor process of a craftsman such as a blacksmith or a shoemaker. These skillful artisans have control over all the stages of the process of production, in possession of the tools of production, working together with the apprentices and journeymen.

2.1.2 Man and Machine: Taylorism and Automation

Machinery gives speed, power, complete uniformity,
and precision, but it cannot give creativity,
adaptability, freedom, heterogeneity

Soetsu Yanagi, *The Unknown Craftsman* (1990: 105).

Mechanization, that is the replacement of tools with machines, forms the basis of capitalist mode of production; and its eventual result in the subordinate role of human labor has formed the cornerstone of the radical questioning of capitalist mode of production since its inception, most significantly by Marx. By enabling large-scale production as well as greater productivity and profitability, the adaptation/subordination of the workforce to mechanization, and the transformation of craftsmen into alienated workers are discussed in detail by Marx, particularly in the section on "Machinery and Large-Scale Industry" in the *Capital*. With the introduction of such profound changes, the basic topics of sociology of work and industrial sociology have also been defined.

The industrial revolution emerged with the steam power and machinery transforming the labor process in the production of many goods. This transformation led to the production of cheaper commodities, expansion of the markets for these cheaper commodities, the increasing productivity of labor as a result of mechanization, and ultimately to the shift from "handicraft skill" to "mechanical ingenuity" (Samuel, 1977: 7). Throughout this great period of transformation, whereby production moved

from workshops and guilds to big factories, and craftsmen of the old met with the machines and turned into waged workers, a profoundly new form of interaction started between people and the machines. As factory work required less manual dexterity compared to traditional craftwork, and the planning phase of the work could be separated from its execution, work moved from homes and workshops to giant factories with long working hours. A significant characteristic of this transformation was, therefore, that machines started to replace the craftsmen's skills.

The machine and its unprecedented benefits were embraced by many in this period. The machine was, according to Wright (1901) "the modern Sphinx whose riddle the artist must solve" (p. 77), or the essential tool of civilization and "the forerunner of democracy" (p. 90). The benefits were also listed by Wright: "Its wonderful cutting, shaping, smoothing, and repetitive capacity" (p. 87).

Mechanization can be defined as the displacement of human labor with the mechanical power. It is important to understand, at this point, the difference between tool and machine. According to Babbage (1832),

> A *tool* is usually more *simple* than a machine; it is generally used with the hand, whilst a machine is frequently moved by animal or steam power. The simpler *machines* are often merely one or more *tools* placed in a frame, and acted on by any moving power. (pp. 10-11)

This distinction is not sufficient, however, to understand the essential dynamics of the transformation caused by mechanization. The basic point was that the employment of machines powered by steam or other sources was more than the inclusion of more complex tools into the production process. The essential change was in the role of human labor in the production of goods. The best explanation of this change can be found in Marx's writings. Marx debates machines and tools and their role on the production process. The assumption of Marx (1982) was that when "a machine has replaced the tool he was using, it is evident that he can also be replaced as a motor by natural forces" (p. 497). Contrary to the machine, however, the tool requires skillful human hands, otherwise

> [A]s soon as tools had been converted from being manual implements of man into the parts of a mechanical apparatus, of a machine, the motive mechanism also acquired an

> independent form, entirely emancipated from the restraints of human strength. (Marx, 1982: 499)

The main concern of Marx was that craft work would be turned into industry. Yet, the most important thing of a craftsman is his tools which can shape and create his hand-made product. The replacement of tools with machinery creates, according to him, a radical change by reducing labor-power "to the highly particularized skill of handling a special tool", producing "chronic misery among the workers who compete with it" (p. 557), and thus leading the workman to revolt "against the instruments of labor" (p. 559).

For Marx (1982), the advantage of machinery is significant with respect to the creation of value:

> In so far as the machine has value and, as a result, transfers value to the product, it forms an element in the value of the latter. Instead of being cheapened, the product is made dearer in proportion to the value of the machine. And it is crystal clear that machines and systems of machinery, large-scale industry's characteristic instruments of labor, are incomparably more loaded with value than the implements used in handicrafts and in manufacture. (p. 509)

The transformation of people into factory workers as a result of industrialization is a significant milestone in the human-machine interaction within modern working life. What followed the initial stage of mechanization was the process of automation. A significant work identifying the effects of automation was the study conducted by Bright (1958) in the Westinghouse Electric Corporation. The changes in production methods affecting the mechanization of lamp manufacturing, in the period from 1908 to 1955 had started with the introduction of manually controlled simple machines, followed with more complex work stations, and finally resulted in full automation of the process of feeding glass parts to the process. Bright's conclusion was that automation had led to a more extensive integration of physical and managerial tasks:

> Under automation, therefore, it becomes a job of management to create superior teamwork. Automation is literally integration of the physical plant. Its counterpart for management is integration of the organization. The plant and its people may no longer be unrelated elements, each proceeding with little regard to the other's actions. An effective automation design team that knits together the requirements, plans, and adaptations of marketing, sales, product design, process design, purchasing, and manufacturing personnel to the total business goals is the first management step toward successful automation. The creation of an operating team to sense the need for change and plan the changes -rapidly- is the second. (Bright, 1958: 234)

This managerial aspect of the transformation was best reflected in the emergence of "scientific management", famously known as Taylorism. In the man-machine interaction shaped by the industrial revolution, a second turning point came with F. W. Taylor's scientific management approach. Taylor, "the father of scientific management", was an American engineer who was the first to apply scientific principles to capitalist work and production systems in an effort to ensure "greater national efficiency" (1919: 9). The principles he proposed reflected the aim of modernizing, rationalizing, standardizing and bureaucratizing industrial production. While the "separation between management, conception, control, and execution (and all that this meant in terms of hierarchical social relations and de-skilling within the labor process)" has been attributed to Taylor, these changes were "already well under way in many industries" (Harvey, 1989: 125).

As summarized by Littler (1978), Taylorism starts with a systematic analysis of work, based on which costs of production are calculated, standard times for every task are determined and an "associated payment incentive system" is created. So the labor process is decomposed, as work is fragmented into its simplest elements, while the stages of planning and execution are separated, with the ultimate aim to ensure that all tasks "to be performed by unskilled and cheaper workers as far as possible" (p. 188). The contradiction of this approach with the traditional craft way of working is obvious, since the minimization of the skills required from the worker constitutes one of the major principles. Both Littler (1978) and Braverman (1998 [1974]) point out that Taylor's principles were not absolutely new, but were developed from the principles of Babbage, whose ideas in turn were inspired by Adam Smith.

Essentially, with these principles, Taylorism is systematization of the transformation of craft production with a scientific management system to be applied in the modern factory. Indeed, Taylorism is usually described by reference to the initial aim to override the crafts unions, particularly in the American context, and the dissolution of the unity of design and execution evident in crafts is a major objective, best summarized in Taylor's own words: "All possible brain work should be removed

from the shop and centered in the planning or laying-out department …" (quoted in Littler, 1978: 190)

Fordism as an ideology and production system indicates the developments from the 1930s to the 1950s in the wake of the world economic crisis and the Second World War. In pre-Fordist period, type of production system was characterized by craft skill, non-standardized production and low level volume, but high quality products owing to craftsmanship. However, Fordism is based on fragmented work tasks, there is moving assembly line, the production system is standardized and a high volume of low-quality products.

Historically, Fordism and Taylorism are related. The principles of Taylorism was put into practice by the industrialist Henry Ford at the start of the 20th century, which "transformed production from small to large scale and reduced markedly the costs of production" (Edgell, 2006: 74). Fordism is commonly defined as the application of Taylor's principles in a specific factory setting that also included the invention of assembly line. In a nutshell, Fordism includes "close supervision, task segmentation, automation and bureaucratic constraint", while alienating and deskilling impact is restricted to manual labor as "professionals and managers tended to enjoy a more favorable work experience" (Crowley et al., 2010: 422).

The term Fordism was first coined by Gramsci (1971) to define American capitalism during the 1920s. While he discusses "Americanism and Fordism" in a broad context, Gramsci defines Taylorism with regard to the rationalization of production, as the expression of:

> [T]he purpose of American society –developing in the worker to the highest degree automatic and mechanical attitudes, breaking up the old psycho-physical nexus of qualified professional work, which demands a certain active participation of intelligence, fantasy and initiative on the part of the worker, and reducing productive operations exclusively to the mechanical, physical aspect. (p. 302)

Fordism as the new form of industrialism, according to Gramsci (1971), fights against the "humanity and spirituality of the worker" that "exist most in the artisan,

in the *demiurge*, when the worker's personality was reflected whole in the object created and when the link between art and labour was still very strong." (p. 303)

Hirsch (1991) similarly connects Taylorism and Fordism, defines Fordism as a strategy of intensive capital accumulation, which is built upon the principles of Taylorism: "The establishment of Taylorism signified a decisive intensification of exploitation, based on far-reaching deskilling processes, the destruction of traditional craft forms of workers' power and the introduction of efficient techniques of managerial control and supervision" (p. 15).

Thompson underlines that general skills were reduced to job-specific ones, largely as a result of mechanization. The skill and knowledge of craft workers were crucial to production, but "over the first quarter of the twentieth century, jobs were broken down, allowing companies frequently to dispense with skilled labor" (Thompson, 1989: 76). In short, the development of science, mechanization, and the dominance of scientific management destroyed the control craft workers had over their work. They used to control their own work processes, for knowledge of it was stored in the craftsmen themselves.

The crucial point here is the standardization of labor. The originality of both Taylorism and Fordism was how they combined division of labor with scientific management approach and turned it into a widely applied technique. To put the contributions of each figure separately, Taylor's contribution was his emphasis that "there is a single and correct method of working for man and if this method is applied, things are made faster, thus productivity and profit increases". What Ford did, on the other hand, was "to engineer the most effective way of bringing together the standardized forms of working", which ultimately created an "empire of hierarchy" (Dikmen, 2003: 9-10).

2.1.3 Labor Process, Skill and Post-Fordism

In the post-World War II world, the increasing pace of technological developments particularly in the area of computers further strengthened the processes of automation. With the introduction of electronic technologies and computers into the production of material goods and services, the impact of increased automation on workers gained importance. The reflection of these in sociological debates on work and organization focused on the concepts of automation, skill and labor process. In the context of the craft-technology interaction, which constitutes a major concern of this study, two debates that emerged in this period are important. The first of these is around the concepts of labor process and deskilling; and the second debate is around the concept of post-Fordism.

The concept of skill is at the center of the debates provoked by Braverman's work on the labor process. Within these debates on "the consequences of technological change for the skill content of work", as summarized by Vallas (1990), two lines of argument emerged. The first was a more optimistic view, regarding the recent changes as an upgrading in the level and distribution of skills. The underlying view regarding technology is a determinist one, which sees the coming of new technologies as the major determinant having positive effects on the workers:

> For such theorists, the coming of automation promises to free workers from the constraints of machine-paced work, enlarging their control over the immediate work environment. Increasingly, workers can (indeed, must) envision the totality of the production process in order to oversee and control it. Finally, employment in technologically advanced firms enables workers to form closer and more collegial ties with supervisors, engineers, and technicians, resulting in more cooperative relations between management and workers than has prevailed under earlier stages of capitalism. (p. 381)

The second view, in contrast, took a pessimistic view and argued that the recent trends brought further degradation of work, particularly through the process of deskilling. This view was best identified with Braverman's (1974) work around the concept of labor process. Their argument was that new technologies were leading to a process of deskilling and degradation even in professional, white-collar jobs. Technology, in this view, was considered to be shaped by social relations, and the

new, automated production processes were regarded in continuity with the Fordist mass production processes of the previous era (Vallas, 1990):

> A central claim of deskilling studies is that information technologies actually deepen the subordination of workers to the dictates of their employers, in that they enable management to remove whatever technical intelligence remains in the workers' grasp. In all these discussion, the concept of skill occupied a central place. (p. 381)

Braverman (1998) believed that scientific management was the main mechanism of control in capitalism and he asserted that workers have been deskilled by science, and technology. The skilled craft-work is thus reduced to the status of unskilled labor because of technology. Taylorism, or scientific management, which developed at the beginning of the 20th century, is seen as the conscious and systematic expression of this process of degradation. His "deskilling thesis" depends on Marx's theory of work in industrial capitalism. From Taylor's scientific approach to management, scientific principles were leading to the separation of conception from execution, and the transfer of all mental labor from the worker to the manager. This kind of a separation benefitted the capitalist by lowering the cost of production, but it also caused a "degrading effect upon the technical capacity of the worker" (1998: 88). Besides, while labor power is considered as productive and creative, Braverman claims, it has become a commodity. Its uses are no longer organized according to the needs and desires of those who sell it, but rather according to the needs of its purchasers, who are, primarily, employers seeking to expand the value of their capital. As a result of this process, labor power is the special and permanent interest of these purchasers to cheapen this commodity (1998: 82).

His work analyzes a series of concepts, including deskilling, routinization, and the degradation of work, as manifested in a spectrum of employment from manufacturing to white-collar work. In this context, he particularly focuses on the Taylorist approach to scientific management. The scientific management, for Braverman, is the main mechanism of control in monopoly capitalism, which is "a theory which is nothing less than the explicit verbalization of the capitalist mode of production" whose "fundamental teachings have become the bedrock of all work design" (1998: 86-87). Braverman (1998) defines division of labor in two categories:

social division of labor, enforced by the market; and the workshop division of labor, "imposed by planning and control" (p. 51).

Braverman's work has been criticized on a series of points, leading some scholar to reformulate his thesis, and others to refute it. He was criticized, for instance, for "conflating the routinization of work processes with the deskilling of workers" (Attewell, 1987: 326); for "overestimating the triumph of Taylorism" or for idealizing craft labor, "exaggerating its prevalence in earlier periods and ignoring the exclusive and sectionalist politics that often underlie it" (Vallas, 1990: 382). He was also criticized for his reading of history, as exemplified by Samuel (1977):

> Nineteenth century capitalism created many more skills than it destroyed, though they were different in kind from those of the all-round craftsmen, and subject to a wholly new level of exploitation. The change from sail to steam in shipping led to the rise of a whole number of new industrial crafts, as well as providing a wider arena for the exercise of old ones. The same may be said of the shift from wood to iron in vehicle building, and of horse to steam in transport. In the woodworking trades a comparatively small amount of machinery supported a vast proliferation of handicraft activities, while in metallurgy the cheapening of manufacturing raw materials led to a multiplication of journeymen-masters. The mid-Victorian engineer was a tool-bearer rather than a machine minder; the boilermaker was an artisan rather than a factory hand. In coal mining activity increased by the recruitment of a vast new class of workers who were neither exactly labourers, nor yet artisans, but who very soon laid claim to hereditary craft skills. Much the same was true of workers in the tinplate mills and ironworks. The number of craftsmen in the building trade increased by leaps and bounds, though the rise of new specialties led to a narrowing of all-round skills. (pp. 59-60)

The labor process debate provoked by Braverman's deskilling thesis was followed by the discussion on whether capitalism had evolved into a new phase that could be labelled as "post-Fordism". The 1980s was characterized by a series of works that identified a shift from Fordism to a new era defined as post-Fordism. The concept of skill continued to occupy a central place, while the post-Fordism title covered a much broader content. The processes related to post-Fordism extended from post-consumerism to globalization or new social movements (Amin, 1995: 1-2).

In both the labor process literature and the post-Fordism literature the concept of skill occupies a central place. While the labor process under monopoly capitalism was characterized by a linear deskilling of the workforce, the post-Fordism debate explored whether flexibility gave rise to the up-skilling, or multi-skilling, of the workforce (Thursfield, 2000).

All debates on the labor process and skills, to be sure, are related to the debates on the transformation of the production systems from Fordism to post-Fordism. The wider social and economic changes during the 1970s and 1980s, which led to the transformation of work organizations and production systems, have been labeled in various ways –such as transition from Fordism to post-Fordism (Amin, 1994; Bonefeld & Holloway, 1991), from modernity to post-modernity (Harvey, 1989; Lyotard, 1979) or from organized to disorganized capitalism (Offe, 1985; Lash & Urry, 1987).

During the Fordist era craftwork was not in a position to compete with mass-scale industrial production. In the face of mass production enabled through mechanization and automation, craft came to be viewed as a nostalgic element. The Fordist style of production, however, started to weaken with the introduction of new information technologies in the production processes. The post-Fordist system of production, also associated with lean production systems pioneered by Toyota, became increasingly influential in the 1970s (Cardoso, 2010).

In contrast to arguments about deskilling, post-Fordist theorists claimed that new technologies and the impact of the "IT revolution" demanded "a wider degree of discretion at work", and hence "a skilled and knowledge-rich workforce" (Carey, 1997: 98). For them, this was a process of "de-Taylorizing", or "reprofessionalization" of work and employment (Littler & Innes, 2003).

On the one hand, there are those who claim that capitalism has transited to a new era that is substantially different from the previous era characterized by Fordism. In this understanding, the new, post-Fordist era is characterized by the concept of flexibility. The demands of competition and the changes in consumer demand necessitated more flexible and horizontal organization of production processes, and the new technologies would facilitate this while also having the effect of upskilling on the workers (Dikmen, 2003: 11).

In the general assumptions regarding evolution of production systems, as summarized in the table below, the skill dimension is central which evolves from the

craft skill in the pre-Fordist era to the deskilled workers of Fordism and later to the multi-skilled or up-skilled employees in post-Fordism. With regard to employment, the transition from Fordist to post-Fordist systems included the replacement of standard employment contracts with diversified contracts on the one hand, and a change from "Taylorist and hierarchical pay and job structures" and standard working hours to such features as team working, performance-related pay, flexible working hours and customer-focused orientation, on the other (Rubery, 2006: 32). Within this context, workers are considered to be empowered by some, even if this does not mean a revival of craftsmanship, while others argue that the empowerment or choice presented to the workers in arrangements such as quality circles are strictly limited while the central dynamic of deskilling embedded in capitalist production continues its dominant position.

Table 2: Evolution of production systems

Type of production system		
Pre-Fordism	**Fordism**	**Post-Fordism**
Craft skills	Fragmented and simplified (Taylorized) work tasks	Re-unification of mental and physical labor, job rotation and multi-skilling
Stationary Assembly	Moving assembly line	Flexible assembly line operated by teams of empowered workers
Non-standardized parts and a low volume of high-quality products	Standardized parts and high volume of low-quality products	Non-standardized parts and great variety of high quality products

Source: Edgell, 2006: 93, 105.

The central claim of the deskilling thesis is that introduction of new technologies in capitalist mode of production aim at reducing the level of skills required to conduct tasks through automation or computerization, as well as separating the design stage from the execution of the pre-designed tasks and transferring the knowledge of the production processes to the management. Considered in the contemporary age, this process necessarily aims at white-collar, professional works while the progress of this process destroys the craft element in such occupations. In the case of

professional work, therefore, an accompanying argument has been the de-professionalization thesis (Haug, 1973, 1975, 1988).

2.2 The *Surgical Craft*

This section will start with a brief history of surgery in order to place surgical work in its historical framework. This will be followed by a conceptual discussion on how to conceptualize surgical work. The aim in this section is to demonstrate how surgical work constitutes a craft. Then, a definition of *surgical craft* will be formulated in order to encompass both the specific features of surgical work and those features that are common to all craft-type works. So the definition that is proposed here aims to satisfy two criteria. First, it aims to give an extensive account of surgery, including all the defining features that are part of the everyday practice of surgical work. Secondly, the components of this definition aims to give a proper account of what a craft is, therefore constituting a useful framework which could be applied to other craft-type works. The final section will situate surgical craft in the contemporary world of intensive technology and innovation, and define it as a *technology-driven craft*.

2.2.1 The History of Surgery: From Barber-Surgeons to Robotic Surgery

Historically, surgery is among the oldest crafts. Archaeological evidence from skulls proves that sophisticated surgical interventions were performed in very early times. The oldest known trepanned skull was found in southern France and dated approximately to 6500 BC, that is more than eight thousand years ago. Similar trepanned skulls remaining from the Stone Age were also found in the Middle East, India, China and Peru (Woods & Woods, 2000: 16).

The history of Western medicine is usually started in Ancient Greece, with the pioneering and still iconic figure of Hippocrates. The importance of Hippocratic

(460-370 BC) collection is “early example of deliberate and repetitive scientific observation and of arguments for and against the worth of endeavors to base medical treatment on systematic physiological theorizing” (Siraisi, 2009: 1). Hippocrates did not favor dissecting the human body: “I will not cut persons laboring under the stone” (Prioreschi, 1998: 370). The Hippocratic Oath still is revered by the medical community, considered as a fundamental text defining the principles of medicine and medical ethics. Hippocrates and the tradition that followed him are regarded as “the first real break from magic and mysticisms, and medicine as a rational art was founded” (Bronzino et al., 1990: 4). In Roman times, Galen (130-200 AD), who was called as the gladiators’ surgeon, made significant contribution to anatomical knowledge. In contrast to Hippocrates, Galen dissected animal bodies; but this also led to faults due to differences between animal and human bodies (Gill et al., 2010). Galen also believed that “the best physician is also a philosopher” (Siraisi, 2009: 4).

However, due to the limitations in both knowledge and techniques, surgery has traditionally been an inferior branch of medicine. This is best exemplified in the status of surgery and surgeon gilds in medieval England. From 1540 to 1745, surgeons were in the same guild with barbers, the Barber Surgeons Company, similar to those in Paris. These surgeon-barbers were trained within guilds through apprenticeship, and mostly performed the tasks of amputations, drainage of abscess or bloodletting. Such manual works that required contact with the patients were regarded as inferior by the physicians, who were university-educated and licensed, and treated illnesses only with medications (Doyle, 2007: 341; Geyer-Kordesch & MacDonald, 2003: 79-80). Socially, physicians had a higher status, and “anatomy and surgery were not legitimate forms of scientific and medical knowledge until the mid to late nineteenth century” (Doyle, 2007: 344). The inferiority and primitiveness of surgery were reflected in Lord Thurlow’s words: "There is no more science in surgery than there is in butchery" (Earle, 1983: 373).

Drastic changes in the effectiveness and prestige of surgery came with the 19th century. Until the 19th century operations were horrific, bloody and very painful procedures; most patients died from infections, or loss of blood. The history of

surgery in the modern age manifests a direct and strong relationship between the advance of new technologies and the fate and capability of surgery. This is the reason why Pickstone (1993), a well-known historian of medicine, describes the period since 19th century as the age of "techno-medicine".

A series of inventions served as milestones in the ascendance of surgery. The first breakthrough came with the use of ether in 1843 by Crawford Long (Boland, 1950). The use of ether made anesthesia possible, and this "revolutionized surgery –how it was practiced, what could be attempted with its use, and even what it sounded like". The introduction of anesthesia turned the operating rooms, which were filled with "the sounds of patients thrashing and screaming" into places of "stillness and silence" (Gawande, 2012: 1717-1718; Risse, 1999: 339-398). The second difficulty to be overcome was the problem of sepsis. In 1860s, Lister discovered the antiseptic principles based on germ theory, published them, and succeeded in preventing infections by spraying carbolic acid over the patient body during surgery (Osborn, 1986). Extending Lister's antiseptic system, Macewen developed an aseptic technique, whereby "he was boiling his instruments and the gauze and towels for dressings and swabs by 1880" (James, 1974: 744).

With the end of 19th century, surgery's role and prestige within medicine began to rise with a "breakneck pace of innovation", as "surgeons began reporting new treatments almost monthly", and developments such as the introduction of rubber gloves and the emergence of specialization and specialist organizations within surgery (Gawande, 2012: 1720). Further innovation to be noted include the use of X-rays for diagnostic purposes, and the emergence of electro-surgery, which means the use of high-frequency electrical current in such tasks as cutting tissues (Massarweh et al., 2006). As summarized strikingly by Schlich (2004), the status of surgery had dramatically changed:

> By 1930, surgery had reached its golden age. Surgeons were not only acknowledged as doctors and scientists, but they were even considered to be modern heroes. The operating theatre had become the glittering center of the modern hospital, a place where miracles could happen. Surgeons now operated on all parts of the body, including the thorax and the skull, repairing bones, removing tumors and restoring complicated internal body structures. They were consulted about the treatment of a wide range of

> diseases, internal and external, and their spectacular successes outshone all other branches of medicine. In short, surgery had become the most important but least questioned technology of body manipulation. (p. 61)

Even more striking results of this high pace of innovations started to appear in the post-World War II era. The significant advances in heart surgery and organ transplantation dramatically changed the outlook of surgery. A dramatic rise in the number of surgeons and in the number of medical students applying for internship in surgery accompanied this change. The diagnostic use of ultrasonography in late 1940s was an addition to diagnostic methods besides X-ray, which were introduced first in 1895 by physicist W. C. Röntgen. 1950s – 1960s were particularly spectacular with the invention of heart-lung machine in 1953, the first successful conduct of various cardiac surgeries, as well organ transplantations: the first successful organ transplant was conducted in 1954, and the first successful human heart transplant in 1967 (Schlager & Lauer, 2000).

Starting in 1960s, the digital revolution and the development of information and communication technologies (ICT) further transformed the practice of surgery. For instance, computerized axial tomography (CAT) scanner was installed in a hospital in 1971. Radical changes occurred in diagnostic methods, with the application of imaging technologies to medicine: Digital radiography, computed tomography, ultrasonography, magnetic resonance imaging, and interventional radiology.

The increasing development and sophistication of technologies also led to an increasing degree of specialization. With the invention of modern imaging techniques and machinery –the CT, MRI, and endoscopy- both transformed diagnosis and led to the development of minimally invasive surgical techniques. The history of endoscopy goes back to the start of 20th century, with the first attempts to inspect the abdominal cavity through tube-like instruments. As the endoscopic techniques developed, enabling doctors to inspect the interior of the body, they paved the way for laparoscopic surgery (Dijck, 2001; Leonhard & Irion, 2011). The advance of endoscopes created substantial impact on the whole practice of medicine by making the body more accessible to medical intervention while simultaneously extending the range and variety of clinical problems that can be dealt with more

directly" (Brown & Webster, 2004: 14). With the advance of new technologies of imagining, radiology and radiologists gained greater importance within medicine, while radiology began to occupy a central place in debates about the growing costs of healthcare (Hillman & Goldsmith, 2011).

From 1970s onwards, the foundations of minimally invasive surgery started to be built, and starting with the 1990s this has been the dominant trend in surgical technology. The removal of gallbladder with laparoscopic technique was first performed in 1985 by Eric Mühe, followed by Philippe Mouret in 1987, and Francois Dubois in 1988 (Cengiz et al., 2011). This was a turning point with respect to the craft of surgery because "[t]he surgeon no longer needed to cut a large incision to draw the lesion towards himself; instead he began to move towards the lesion, as delicately as possible" (Villet, 2011: e1). This shift from the traditional/open surgery to laparoscopic/closed surgery has been a revolutionary change in surgery, producing numerous consequences in the way surgery was performed, the division of labor in the OT, the combination of the operating staff, as well as the hospitalization period of the patient (Ayşan, 2012; Page et al., 2008).

The most cutting-edge surgical technology today is the use of robots in surgery, or robotics surgery. By 2000, several types of robotic instruments started to be used in surgery. Robotic surgery developed mostly out of laparoscopic surgery, with certain improvements and advantages, as well as disadvantages. There is a burgeoning literature on robotic surgery within surgery, but also in social studies of medical technology (Cinquin, 2011; Ewing et al., 2004; Hockstein et al., 2007; Marohn & Hanly, 2004; Pugin et al., 2011).

2.2.2 Surgical Work in Social Science

Surgery and surgical work constitute a significant, although relatively less studied, topic within the sociology and anthropology of medicine. A significant body of ethnographic studies of surgery has been produced within medical anthropology. The majority of works in this vein were produced by several authors, including Cassell

(1986, 1991, 1996, 1997, 1998, 2002, 2005), Fox (1989, 1992, 1993, 1994a, 1994b), and Katz (1981, 1985, 1999). The predominant themes in these works include the social meaning of surgery, cultural, discursive and gender aspects of surgery, its relationship with the body or discourses and rituals related to surgical practices.[9]

Technological change and innovation constitutes a significant theme in other outstanding studies on surgical work. These include the introduction of total hip replacement (Anderson et al., 2007), innovations in fracture care (Schlich, 2002, 2007); the impact of technological change on division of labor (Zetka, 1998, 2001, 2003), the role of "boundary objects" in innovation (Fox, 2011), the labor-intensification effect of technology (Johnstone, 2005), and simulators in medical education (Johnson, 2007). In addition, there are other works dealing with surgical performance (Gabe et al., 2012), daily surgical work (Pope, 2002), construction of surgical knowledge (Serra, 2013); the emergence of "corporate elites" among surgeons in similarity with he re-stratification process observed by Freidson (Waring & Bishop, 2013; 2015)

A further place to look for sociological studies of surgical work should be the literature on "medical profession". An interesting point here is that the medical profession has been very significant in the development of this subdiscipline. As noted by various authors, medicine has been the prototype profession (Abbott, 1988; Haug, 1975), "the one upon which current sociological conceptions of professions tend to be based" (Bucher & Strauss, 1961: 326), or the paradigmatic case, so that "all other occupations were compared, implicitly or explicitly, to it" (Ritzer & Walczak, 1988: 5).

This literature evolved from a functionalist understanding of professions to more critical views on the consequences of professional authority in the 1970s or its sustainability in the face of post-Fordism since late 1970s. Conducted primarily

[9] Other works in this vein include Bosk, 2003; Collins, 1994; Doyle, 2007; Harris, 2008; Hirschauer, 1991; Joanisse, 2005; Kellogg, 2011; López, 2009; Lynch, 1994; Mondada, 2014; Moreira, 2004; Prentice, 2007, 2012; Waring & Bishop, 2010.

within the US context, the debate on professions evolved from professionalization to professional dominance and later to deprofessionalization and proletarianization. Within the mainstream of sociology of professions, from Parsons to Freidson and beyond, the focus has mostly been the macrostructural dimension, dealing with how professions are differentiated from other occupations, their relations with the general social structure and how professional communities obtain power and legitimate it.

The beginning point is the consideration that professions constitute a specific type of occupation. What differentiates professions from other occupations? In one of the earliest definitions, Carr-Saunders argued that the members of a profession had to convince the public that it possessed "a technique founded upon an elaborate training and that equivalent services cannot be rendered by any untrained person who may offer to perform them at a lower price" (1928: 13). The nature of the tasks performed, therefore, is crucial, while it is usually supplemented by a distinct and autonomous professional organization. This organization provides accountability through peer-review and standard-setting, while also providing the basis for professional autonomy and authority. The distinctive features of professional work can be summarized in three points (Adler et al., 2007: 361):

> i. non-routine tasks requiring expertise based on both abstract knowledge and practical apprenticeship,
> ii. monopoly over this practice jurisdiction and individual autonomy within it,
> iii. legal and ethical responsibility for this practice that is typically reflected in values of service.

This specific position enables these professional communities to occupy a privileged position with regard to the state, the market forces or the society in general. This privileged position, in turn, is legitimated by the essential and esoteric knowledge and techniques, as well as the argument that professionals put these in the service of the society, for the benefit of their clients. This position of the professionals is explained by functionalist or systemic theories as a necessary feature of modern, complex societies. The Parsonian model of professionalism had seen professions as primarily motivated by status and prestige in constructing their expert authority, while this view was later contrasted with studies arguing that they were "monopolists, who were in fact hungry not merely for status but also for both money

and power; and, moreover, that it had ignored the actual failure of professional institutions to guarantee the quality of their members' work" (Latham, 2002: 365). On this basis, the professional dominance thesis, developed in late 1960s challenged and complemented this literature by demonstrating that the professions gain power and privilege trough social processes through which they construct their autonomy and dominance over other occupations. The subsequent development in these debates was the advance of deprofessionalization thesis in the 1970s. This time, the argument was that the power of professions was being diminished as a result of social, economic and political changes.

Medicine provided a significant case for all the debates summarized above. For the earliest studies and especially for Parsons, medicine was the ideal case on which to build a study of professions (Carr-Saunders, 1928; Carr-Saunders & Wilson, 1933; Parsons, 1937, 1939). The period from 1940s to 1960s was defined by Freidson as the age of professional dominance. Medicine again provided the paradigmatic case, as signified in the titles of Freidson's seminal works: *Professional Dominance: The Social Structure of Medical Care* (1970b) and the *Profession of Medicine* (1970a). According to Freidson, the sources of professional dominance include the autonomy over work, along with the control over the work of others in one's domain, which provides the real source of power. The essence of this dominance was that medicine succeeded "to convince the economic and governmental elites, as well as the general population, that what it did as a profession was both valuable and necessary and required little to no outside regulation" (Castellani & Hafferty, 2006: 7).

In the decades following Freidson's work, other scholars came up with counter arguments about the fall in the power of professions. Medicine was once again the primary case. According to these scholars, the autonomy of the profession of medicine was eroding, with medicine becoming "subject to the same kind of formalized and hierarchical controls from outside the profession that other occupation routinely face" (Wolinsky, 1988: 37-38). Particularly in the US context, a series of factors led to significant changes in medicine and health. The increasing costs of healthcare, the advances in biomedical technologies, the rise of corporate

bodies in health service, emergence of consumerist patients as well as the effects of new information technologies are usually listed as the major changes in this context. The effects of these on the medical profession were conceptualized as deprofessionalization (Haug, 1973, 1975, 1976, 1988; Haug & Lavin 1981, 1983), proletarianization (Chernomas, 1986; Coburn, 1994; McKinlay, 1982; McKinlay & Arches, 1985; McKinlay & Stoeckle, 1988), and corporatization (McKinlay & Stoeckle, 1980).[10]

These conceptualizations have shaped the continuation of debates within the sociology of profession (Hafferty & McKinlay, 1993). One line of discussion has been between professionalization and deprofessionalization. The proletarianization thesis attracted significant criticism from various authors (Mechanic, 1991; Light & Levine, 1988; Navarro, 1988; Roemer, 1986). While the claims of deprofessionalization and proletarianization are partially supported by actual developments, their assertions are considered to be somewhat overstated. A recent contribution to this debate pointed at a diversification of position among physicians, with a "knowledge elite" and "administrative elite" appearing (Hafferty & Light, 1995). Corporatization, on the other hand, has been an established feature of contemporary medicine, at least in the general sense that "it is organized within more complex organizational forms, characterized by corporate objectives and some division of responsibility between management and operations" (Mechanic, 1991: 494).

Where does surgical work stand in all this literature on medical profession? In general, the literature on medical profession does not tend to make any difference between surgeons and the other physicians. Obviously the surgeons constitute a part of the general body of the medical community, mostly working in the same organizational contexts, subject to same legal, economic and social regulations and

[10] A recent formulation of the corporatization thesis argues that "in just 25 years, U.S. health care has been historically transformed—from a predominantly fee-for-service system controlled by dominant professionals to a corporatized system dominated by increasingly concentrated and globalized financial and industrial interests" (McKinlay & Marceau, 2002: 381).

constraints. In the end, however, surgical work appears to remain peripheral to the studies on medical profession. Surgeons are seldom studied separately as cases of medical profession.[11] The composition of the medical specialties within the samples studied are not always explained, therefore the existence or the amount of surgeons within the samples remains unknown.[12] In the discussion of the conclusions, moreover, it is rare to see that differences between surgeons and other doctors are discussed in length.

Given the significantly different tasks performed by surgeons in the operating rooms, the intensity of surgical work's relation with technology, and the differing ways of thinking and acting attributed to them, studying surgeons separately seems significant. It is significant for a better understanding of differentiations within the profession, and their effects on the profession's interaction with the social world. This aspect of differentiation is increasingly emphasized in academic studies (Castellani & Hafferty, 2006; Hafferty & Light, 1995). The economic aspect of surgery is also important. The need for increasing technological investments, for instance, is one of the causes of corporatization as mentioned above. The increase in costs, on the other hand, is one of the reasons for deprofessionalizing pressures on doctors. In both cases, surgery is particularly important due to its involvement in the use of high-technology, and the greater costs of surgical operations. As a result, the particular characteristics of surgical work, and its significance in economic terms require a greater emphasis within the studies on medical profession.

The previous review of the literature on medical profession also implies the limitations that a professions perspective carries in studying surgical work. The crucial point is that the sociology of professions focuses on the concepts of power and autonomy, dealing mostly with the organizational aspects or with the

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[11] Some significant exceptions include Annandale, 1989; Borthwic, 2000; Borthwic et al., 2015; Coser, 1958; Eisenberg et al., 1983; Flood & Scott, 1978.

[12] Freidson (1970a), for instance, gives a very limited space to discussing the specific characteristics of surgery. Similarly, Haug (1975) discusses his thesis of deprofessionalization with reference to unstructured interviews with general practitioners.

relationships between the professional community as a whole and the society, state or market forces.

It would be fair to conclude, therefore, that the work aspect of surgery has been neglected.[13] The need to focus more closely on the work of the surgeons put the efficiency of the concept of profession into question. The more convenient conceptual framework proposed in this study is that of craftwork. The concept of craft may promises more insight into the work of the surgeons as separate from other branches of medical profession, while also being more useful in understanding the effects of technological change in their daily tasks. In this way, the craft perspective enriches the understanding of medical work by respecting the peculiarity of surgery, and also making it a subject of sociology of work.

Defining surgery as a craft would not be controversial in any way, given that even the etymological origin of the term is related to craft (Najarian, 1989: 257): The ancient Greek term *kheirourgia* means "working or done by hand", and is composed of *kheir* (hand) and *ergon* (work) (Partridge, 2006: 3320). It is also widespread among the practitioners of surgery to define their work as a craft.[14] According to Najarian (1989), it is the craft of surgery that separates surgeon from other physicians: "A surgeon maintains the cognitive skills of the physician, and yet has in his or her therapeutic armamentarium one of the most effective treatment modalities -the scalpel." (p. 259)

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[13] This claim parallels Lupton's argument that "the "deprofessionalization" and "proletarianization" debate needs to move beyond its primary focus on macrostructural and policy issues, the relationship of doctors as a professional group to the state, to the micro-sociological aspects of the everyday experiences of medical practitioners at work." (1997: 491)

[14] Some recent cases of cooperation between surgeons and craftsmen provide interesting examples for the similarity between surgery and craft. In the first case, a glass artist prepares molds for the body organs (trachea, nose or ears) to be used in reconstructive surgery (Yair, 2012). In the second example, a British senior orthopedic surgeon assigns a junior surgeon to practice with a carpenter, due to similarities in their practices. (http://www.walesonline.co.uk/news/health/top-bone-surgeon-sends-apprentice-1939658)

The usefulness of reintroducing the concept of craft into medicine is also offered by Hoffmann (2003). Hoffmann argues that the concept of *techne* (art) in ancient Greece is more useful in conceptualizing medicine, compared to the concept of *phronesis* (practical wisdom). Indeed, the definition of *techne* is almost identical to the definition of craft given above. Hoffman describes the key characteristics of *techne* in the following order: (i) *knowledge* of a specific field, (ii) a specific *end*, (iii) a *useful* result, (iv) *mastery* of general rational principles that can be explained and therefore taught (p. 404)

Sennett (2008), on the other hand, defines three abilities as the foundation of craft: "These are the ability to localize, to question, and to open up. The first involves making a matter concrete, the second reflecting on its qualities, the third expanding its sense" (p. 277). In defining the ability to localize, he gives the example of a surgeon:

> Localizing can result from sensory stimulation, as when in a dissection the scalpel encounters unexpected hard matter; at this moment, the anatomist's hand movements become both slower and smaller. Localization can also occur when the sensory stimulation is of something missing, absent, or ambiguous. An abscess in the body, sending the physical signal of a loss of tension, will localize hand movement. (p. 278)

Given the vitality of the tasks included in surgery, and the risks directly related to the life of the patient, surgery can be considered as a perfect example of what Pye named as "workmanship of risk". According to Pye (1968), craftsmanship:

> [M]eans simply workmanship using any kind of technique or apparatus, in which the quality of the result is not predetermined, but depends on the judgment, dexterity and care which the maker exercises as he works. The essential idea is that the quality of the result is continuously at risk during the process of making; and so I shall call this kind of workmanship 'The workmanship of risk'. (p. 20)

This quotation from Pye also points at a significant feature of the concept of craft that is employed in this study. Craft or craftsmanship, in this context, denotes a process, a manner of doing things, rather than certain end products. This point is also emphasized in a report prepared for the Crafts Council of the UK, in which authors argue that craft is best defined on the basis of process, since "two craftsmen working in entirely different disciplines are likely to have more in common than a bespoke carpenter and a large scale furniture manufacturer." (Dodd & Morgan, 2012: 14).

The contrast between mass-production and handicraft, as summarized by Posner (1993), is also relevant in the case of surgery, where the output is produced in a workshop-like environment (the operating room), with a small team in face-to-face contact, and the surgeon playing the role of the master:

> Mass production involves a change in the process of production from the handcrafting of small quantities of individualized, high-quality goods by highly trained specialists to the machine production of large quantities of goods of average quality, often by unskilled workers performing simple, repetitive operations under the direction of supervisors and ultimately by executives. (p. 12)

Taking all these into account, this study suggests that the work of surgeons can be best analyzed by employing the concept of craft, and defining the *surgical craft*. In defining the surgical craft, a comprehensive set of characteristics are used, which constitute the subject of the next section.

2.2.3 **The** Surgical Craft*:*

In order to apply the craft framework to surgical work, a review of the basic features of surgical work is required. Surgical work is the combination of a series of tasks, which are complicated and which require profound theoretical and practical knowledge regarding the human anatomy, diseases and alternative treatments, as well as the use of numerous surgical tools and technologies and various materials. The typical tasks performed by a surgeon include seeing patients at the clinic, deciding for each patient whether a surgical treatment is necessary and whether the patient is suitable for surgery; and performing the operation and related processes, as well as various administrative, teaching and research tasks.

The central task that defines a surgeon's work is the operation, and those directly related to the pre-operative and post-operative stages. Depending on the type of hospital, various tasks may be added to this list: In a training and research hospital, for example, the surgeon will be training the assistant surgeons. If the hospital is a university hospital, and the surgeon has an academic position, scholarly research, laboratory experiments, publishing, and teaching will also be included. In almost all

cases, the surgeon is part of a team or a service, with different senior and assistant surgeons; and this means there will be administrative tasks, such as staff meetings. A senior surgeon will typically spend the working day at the office where patients are seen, at the ward where patients in pre-operative and post-operative stages are staying, and in the operating room.

Among this variety of tasks, the operation, that is "[t]he event when the surgeon intervenes to manipulate or alter the patient's body" (Pope, 2002: 371), takes the central place. It is in the operating room that the surgeon puts her knowledge, skills, judgment and dexterity to maximum work. In the words of a well-known surgeon, "[s]urgery is a profession defined by its authority to cure by means of bodily invasion" (Gawande, 2012: 1716). The objective, or the outcome, of this process is healing, which can be defined as "effecting some change that will be understood as leaving the patient in a better condition than prior to the surgical intervention." (Fox, 1992: 3)

A surgeon may be working in a range of different environments. Almost all work in hospitals (the primary exception being solo practice), and these hospitals may be of different kinds: university associated, training and research (*eğitim ve araştırma*), state (*devlet*), non-profit endowment (*vakıf*) or private clinics and hospitals (*özel*). When working at university hospitals, they are usually part of the academic staff, therefore associated with the relevant academic departments, carrying out teaching and possibly taking administrative positions (department chair, dean, etc.). In almost all cases, the surgical teams include assistant surgeons (*uzmanlık öğrencisi* or *asistan*), and the surgeons are obliged to train them.

Considering the various definitions of craft mentioned in previous sections, this study relies on a set of characteristics that sufficiently defines the surgical craft. This is a list of six components, relevant to various aspects of the surgical work: *Skill and techniques*, *mastery-apprenticeship*, *output, autonomy*, *aesthetics and creativity*, *character and attitudes*.

While descriptions of these components will be provided in the following sections, a few points should be noted. First, the definition proposed here is an ideal typical definition, which means that all components may not be observed to maximum extent in all cases. Secondly, the components are all interrelated with each other.

2.2.3.i Skills and Techniques

The first and foremost distinguishing character of a craft is the existence of an established set of skills and techniques that the members of the craft regularly employ. This identifiable set of skills and techniques include the specific materials that the craft deals with, the tools, machines and other equipment and devices employed, as well as the knowledge required for these tasks. The knowledge in the crafts, however, is not limited to theoretical knowledge. It is a combination of theoretical and practical knowledge, as craftsmanship is about applying this knowledge to the particular case or object at hand. In this sense, the craftsperson acts as "a mediator between an abstract corpus of accumulated knowledge and the concrete and specific problems presented by particular clients" (Burkett & Knafl, 1974: 82). In this context, the common features of crafts include the togetherness of mental and manual labor; the existence of tacit, ineffable knowledge, apart from general, theoretical knowledge; dexterity that is a product of training as well as talent; and the necessity for judgment and problem-solving skills in order to cope with the contingencies and particularities of each case.

Indivisibility of conception and execution: Surgery presents a perfect example for this complete control of the process of production, in which there is no separation of mental and manual labor on behalf of the surgeons. Indeed, the surgeon is responsible for the "selection of patients or cases as suitable for surgical treatment", the planning or design of the operation, while also being actively involved in its execution. In all phases of surgery (pre-operative, operative, and post-operative), and in both its design and conception, a wide range of theoretical and scientific knowledge base is required for successful conception and execution. As defined by

the American Board of Surgery, the theoretical foundation of surgery includes "anatomy, physiology, metabolism, immunology, nutrition, pathology, wound healing, shock and resuscitation, intensive care and neoplasia" (Zetka, 2003: 148). The execution, on the other hand, includes the use of highly advanced technology, as well as a significant amount of bodily work performed surgeon (Pope, 2002: 370). A definition of surgery by a neurosurgeon expresses this aspect: "Surgery is still basically the use of hands and tools to modify or eliminate malfunction and disease to prolong life and enhance its quality and dignity" (Najarian, 1989: 259). This is a crucial dimension that differentiates surgery also from other branches of medicine. The physicians, for instance the internists, cardiologists or dermatologists, use basically their cognitive skills for both diagnosis and treatment, while for the surgeons "[d]iagnosing the true pathology of the condition is, in and of itself, irrelevant if doing so does not lead directly to the improvement of the patient's condition … through anatomical reconstruction." (Zetka, 2003: 56).

Making by hand: According to Metcalf (1993), making by hand is "the primary root of all craft, the wellspring and reference point for everything else in the field" (p. 40). While this criterion may be seen as an obstacle for the concept of craft to be applied in various occupations, in the case of surgery no such contradiction exists. The hands of the surgeon play a crucial role in the execution of surgery, to such an extent that, the life-saving role of surgeons is celebrated by calling them as "the God's hands". Furthermore, the ultimate description of mastery in surgery is the possession of "good hands". With the centrality of hands in surgery, similar to other crafts, surgeons need to possess a good level of dexterity. How this dexterity can be acquired, whether practice and training would suffice or inherent talent would be required is also debated within surgery.

The account given by a carpenter about his work reflects the resemblance between the way a carpenter and a surgeon use their hands:

> I am making a bookcase from wooden planks. Each shelf has to be cut to the right length. Marking the distance along the plank with a tape measure, I use a pencil and set square to draw a straight line across it. After these preliminaries I set the plank on a trestle, lift my left leg and kneel with as much of my weight as I can upon it, while

> keeping my balance on the ground with my right foot. The line to be cut slightly overhangs the right end of the trestle. Then, stooping, I place the palm of my left hand on the plank just to the left of the line, grasping it around the edge by the fingers. Taking up a saw with my right hand, I wrap my fingers around the handle –all, that is, except the index finger, which is extended along the flat of the handle, enabling me to fine-tune the direction of the blade (Ingold, 2011: 51).

This is perfectly similar to the way a surgeon uses the scalpel:

> The thumb finger and the other four fingers of one hand are tight and apart, fixing the part of the body for the incision, while the thumb and fingers of the other powerfully grasps the scalpel, making the incision swiftly in a single move. Here, the thumb is in the lead role. The scalpel with the thumb strictly stuck to it, quickly cuts a straight line on the body, and what is left to the viewer is to admire. (Field notes, 2012)

Tacit knowledge: All crafts include a tacit body of knowledge that cannot be easily articulated or communicated, but can be acquired only through practice and experience. In contrast to explicit or theoretical knowledge which "can be codified in textbooks, procedural scripts, and verbal instructions", tacit knowledge "cannot be taught solely by verbal means" as it exists in two distinct forms, that is "physical skill and unspoken social lessons" (Prentice, 2005: 839).

Defining the work of the surgeon as the application of an abstract body of knowledge (human anatomy, the science of medicine) to particular cases presented by individual patients, is limited, because a significant part of a surgeon's work includes "decisions which must be based on more commonsense or rule-of-thumb considerations" (Burkett & Knafl, 1974: 83).[15] The defining character of this type of technical/tacit knowledge is that it is "nebulous, unformulisable and individualized" (Pope, 2002: 380).[16]

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[15] In fact, this is generally the case for many "professional" occupations, leading practitioners of various disciplines to call what they do as "art" or "craft". A good example for tacit knowledge in a profession comes from the case of judges: "Anyone who interviews judges about their decision making will have been frustrated by a similar inability of judges to explain clearly how they came to the judgment they did." (Tata, 2007: 432).

[16] The philosophical background to this notion of tacit knowledge is rooted in Reber's concept of "implicit learning" as well as Michael Polanyi's writings on the subject. Reber (1996) defines implicit learning as "the acquisition of knowledge that takes place largely independently of conscious attempts to learn and largely in the absence of explicit knowledge about what was acquired" (p. 5), while Polanyi's work emphasizes the inarticulate and tacit components of knowledge (Polanyi, 1958).

In the case of surgery, and medicine in general, this existence of a tacit body of knowledge that could be acquired only through apprenticeship and practice has always been expressed. It has also been an issue of contention between those who prefer to emphasize the scientific aspect of surgery and those who resist medicine "becoming 'too scientific' and thereby losing touch with 'more practical' aspects of patient care" (Burkett & Knafl, 1974: 83). This aspect of surgery is best expressed by a surgeon:

> Surgery is not an exact science, nor is it likely to become one in the foreseeable future. Our patients are not scientific problems. They are human beings in distress, and those called upon to diagnose and treat their disabilities must have been brought up in the tradition of the doctor and be possessed of judgment, compassion and understanding (a surgeon as cited in Burkett & Knafl, 1974: 83).

In fact, similar remarks that highlight the non-scientific, non-systematic aspect of surgery can be easily observed, for example: "Surgical decision-making is a semi-exact scientific process, and it is unreasonable to expect exact answers to clinical problems." (Rutkow et al., 1979)

Tacit knowledge, in consequence, consists of that part of the knowledge of a surgeon that complements the explicit part:

> Explicit knowledge is the knowledge that can be acquired from information sources. For example, it is possible to find out how to perform an appendicectomy by reading a textbook of surgery. The incision, process of removal and closure of the wound may all be well described. However, this does not translate into the ability to perform an appendicectomy in real surgical practice. The tacit knowledge is how to make the incision of the skin, what it feels like, how to open the wound, what it looks like once open, and what it should not look like. This knowledge is difficult to obtain without observing an appendicectomy. However, the need for this tacit knowledge is extremely high (Dawes & Lens, 2007: 749).

Similarly, Katz (1999) defines as intuition, what is generally named as tacit knowledge, and emphasizes the unity of hand and brain when he notes that "surgical intuition uses all senses, especially the eye and touch." The excerpt he takes from McPeek is illuminating in this context:

> The senior surgeon will ask the junior to change positions at the table. Often, apparently suddenly and unexpectedly, the senior, previously at a loss to put the data together, will arrive at an answer, just from feeling the tissues or viewing the situation from a new angle. Although a previously unobtained answer or formulation has appeared, the surgeon is hard put to describe how he got it (as cited in Katz, 1999: 49).

Judgment: It is often repeated by surgeons that, similar to other crafts, any individual able to use her hands could be taught to operate in a short time[17]. Yet that individual would lack a more crucial skill, which is judgment (Najarian, 1989: 259; Zetka, 2003: 147-149). The surgical judgment, regarded as "the ultimate core value" for surgeons requires evaluation of various complex factors in order to decide who to operate (and not to operate), and how to operate. In the words of a surgeon, what is "more important than knowing how to cut … is knowing when to operate, when to stop cutting, and how to take care of what you did" (Cassell, 1991: 15). The centrality of judgment among the skills required from a surgeon, is further emphasized in the following quotation from a hand surgeon:

> Most surgeons learn dexterity through repeated practice. Where they differ most … is not in technique, the kind of stitch they prefer, or the particular instrument they like to use in a particular setting, but in how they conceptualize a patient's problem and understand what surgery can and cannot do to remedy it. The surgeon's brain is more important than his hands (Groopman, 2007: 140-141).

The complexity of this process is described in detail by W. Nolen, a well-known general surgeon, as quoted by Zetka (2003):

> It requires long time and a lot of hard work for a doctor to acquire sound surgical judgment. Every time he sees a patient he has to be able to assess and evaluate the history of the patient's illness, the findings on physical examination, the chemical studies of the blood, the results of x-rays and a multitude of other factors; and after weighing all these factors, he has to decide whether to operate or not, what procedure to use, whether to do the operation immediately or later. And he has to be right (p. 147).

Also during operations, unexpected situations may occur, such as contingencies (Pope, 2002) or accidents, and the surgeon must decide and act correctly and immediately. This is again an ability that develops in relation to experience and seniority. As part of the non-technical skill components that should be included in the training of surgeons in order to avoid adverse incidents in surgery, the study by Yule et al. (2006) lists the following skills as crucial: *Situation awareness*, *decision making*, *task management*, *leadership*, *communication and teamwork*.

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[17] Cassell (1991: 16) even cites a saying common among surgeons: "I could teach a gorilla to operate in six months … but not *when*".

2.2.3.ii Master-Apprentice Relationship

In all crafts, the objective is to gain mastery in the manipulation of materials and tools specific to the particular craft. This mastery requires perfection in skills, and it is commonly argued that "about ten thousand hours of experience are required to produce a master carpenter or musician"; achieving this level of mastery means that "technique is no longer a mechanical activity; people can feel fully and think deeply what they are doing once they do it well" (Sennett, 2008: 20).

Training and Hierarchy: The togetherness of conception and execution, the existence of a tacit component of knowledge, and the need for dexterity in the use of hands mean that a long process of training is required before mastery is achieved. Only when a person achieves complete mastery in all the processes that he/she is awarded the title, and allowed to practice the craft alone. In the case of surgery, this period of training is among the longest and most challenging. Attending a medical school and obtaining a degree are only prerequisites. This is followed by a period of residency, whereby formal education in the science of medicine is accompanied with training in the skills and techniques of surgery (Zetka, 2003: 170). This training takes place in the context of a master-apprentice relationship, similar to other crafts. Surgery is a field where this period of apprenticeship is particularly long and arduous, as expressed by a surgeon:

> In a strict (but simple) academic sense it takes a college degree, followed by a medical school education, followed by a residency. And it takes excellence at each of these levels.
>
> In a broader sense, though, it takes an individual who is willing to subordinate his personal life –and sacrifice much of his youth- to acquiring the skills and knowledge which a surgeon must possess. This sacrifice takes its toll –on families, on mental health, on life-style. A surgical trainee may not get out on his own until well in his thirties –living in the meantime a meager existence at best. It's a hell of an extended adolescence. (Miller, 2004: vii)

Apprenticeship is basically a period that is based on *mimicry*, in which the apprentice is obliged to follow the master in every step, assimilate the master's behavior and mindset:[18]

> You follow your master because you trust his manner of doing things even when you cannot analyze and account in detail for its effectiveness. By watching the master and emulating his efforts in the presence of his example, the apprentice unconsciously picks up the rules of the art, including those which are not explicitly known to the master himself. These hidden rules can be assimilated only by a person who surrenders himself to that extent uncritically to the imitation of another. (Polanyi, 1958: 55)

In the case of surgery, apprenticeship is again based on mimicry. It is carried out within the operating theatre, and includes three phases:

> Firstly, the trainee helps the trainer in the operating theatre and observes the procedures. Then gradually the surgeon in training assumes the role of operator rather than assistant, and he or she is introduced to the use of surgical instruments and the principles of dissection, ligation, and suturing under the supervision of a senior surgeon. Eventually, when sufficient skill and confidence have been developed, trainees are allowed to operate on their own. (MacIntyre & Munro, 1990: 1088)

The surgical training necessarily includes the acquisition of hand skills, and the use of hands is important even in the learning of anatomy. The patient's body is the material that the surgical craft works on, and the surgeons need to learn its "materiality – its specificity, its pathologies, its interactions with other bodies"; therefore "a student's physical experience of dissection is a critical component of anatomical learning" (Prentice, 2005: 839).

The necessity for mimicry derives from the fact that in many cases certain skills cannot be transmitted through instruction but requires hands-on-practice. For instance, in the context of bone surgery, it is claimed that "even the most detailed description could not replace a practical demonstration in the operating room" (Schlich, 2002: 67).

In the medieval case of surgeon crafts and guilds, apprenticeship functioned as a "labor-saving device", with benefits for both masters and the apprentices. The

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[18] The difference between medical and surgical residents with regard to attitudes about shared decision-making reflects how surgical apprenticeship leads to the assimilation of more authoritarian attitudes. (Eisenberg et al., 1983)

apprentices were “employed in keeping their masters' shop tidy, running errands, and visiting patients to check on their progress”, while in return, “the master contributed the advantages of his patronage and influence within the community” (Geyer-Kordesch & Macdonald, 1999: 91). The modern form of apprenticeship in surgery can be considered to begin with the first surgical residency started by William Halsted in Baltimore:

> He established a system that required maximal dedication, attention to detail, complete endurance and an open-ended time of residency completion. This system started to produce well-trained surgeons who had spent uncountable hours of committed work in the surgical suites and operating room. Other surgical teachers in different parts of the United States and the world implemented a similar successful system of hard work and commitment. (Toldeo-Pereyra, 2007: 13)

The prevalence of this master-apprentice relationship within surgery can also be considered to favor the craft aspect of surgery in comparison to its scientific aspect. For instance, Katz (1999) argues that apprenticeship elevates the skill and judgment of senior surgeons by enhancing “the belief that the individual surgeon with his individual, and often genetically endowed, skills is more important than scrupulous attention to application of scientific principles” (p. 52).

Commitment: Such a burdensome apprenticeship clearly demands a high level of commitment from the assistant surgeon, as well as loyalty and dedication. Equally intensive commitment and dedication is required also from established, senior surgeons. All crafts are usually carried out for a life-time; therefore, they require a high level of commitment. The need for continuous concentration and attention also increases this requirement. In the case of surgery, the training period itself takes 10-15 years. This period, moreover, involves serious physical, social, and psychological challenges. Therefore, surgery demands high level of commitment from those who want to become surgeon. This commitment is reflected in many practitioners as a deep attachment, even a feeling of passion for their work.

The *workshop* is the defining environment, where master-apprentice relationship takes place. The workshop is characterized by face-to-face cooperation, and it also includes the hierarchy governing the production process in the workshop (Sennett, 2008: 54). The historical workshops of the crafts were small places in which “the

master was presumed to know the craft, which apprentices were presumed not to know and had every motive for learning, so that they too could become skilled workers." The master-apprentice relationship was also a relationship of power and authority, in which master acquired power through his ownership of "the workshop as well as the expert knowledge of how to work in it"; and the face-to-face relations facilitated the application of this authority (Clegg, 2006: 426).

The corresponding workshop for surgery is the OT. The assistant surgeons follow, watch and imitate their master surgeon in a variety of places, including the clinic and the ward; yet, the operating theater is the primary space for acquiring the ultimate practical skills of surgery. The senior surgeon possesses almost absolute authority within the OT, as the whole process of surgery is designed and executed by him or under his instruction. Assistant surgeons are responsible for menial tasks, and are under the command of the surgeon. Obviously, the master surgeon does not own the OT, and both the senior and assistant surgeons are employees in the hospital. Still, the authority exercised by the surgeons on both assistants and other staff is well-documented. For the assistant surgeons, on the other hand, participating in the operations, watching the senior surgeon at work, and following the instructions is the only way to become a certified surgeon capable of operating on her own.

2.2.3.iii Output

A defining feature of crafts is the production of a final product, of some *utility*. Without an end product that would be *useful* for others, there would not be craft; it would either be art or some other job (Kritzer, 2007). In the case of surgery, the product, or the service provided, is the repair of the diseased body of a patient, or the treatment and status of health as a result of this repair process. Therefore, the output of surgical craft can be defined as *healing* or *cure* (Cassell, 1991; Fox, 1992). This process of healing requires the employment of the various skills of the surgeon at various stages of the process.

Surgery manifests a number of peculiarities in this respect. The operation is applied on the patient's body, therefore the explicit content of the patient is required for any surgical procedure to be conducted. On the other hand, the client usually does not go to the surgeon with a predefined demand, is not even aware or sure whether and what kind of operation will be necessary. Therefore, a communicative process is required whereby the surgeon builds trust and patient gives consent. The more technical part of the process, the operation, is usually performed while the patient is unconscious.

These features manifest both differences and similarities with other kinds of crafts. In the case of carpentry, for example, the client may or may not express specific demands about the object to be produced, and the carpenter produces it in the solitude of the workshop. Software craftsmanship, on the other hand, requires close interaction with the consumer, since software developers do not produce for their own use (McBreen, 2002).

In the end, surgery is about life-or-death issues. In terms of work, therefore, the quality of the output is the major objective and criterion that cannot be compromised. In this sense, surgery can be classified as a "quality-driven work" (Sennett, 2008: 241-245). The most significant indicators of quality in surgery, on the other hand, include low "mortality and morbidity rates", low numbers of complications during the operation, and the shortness of post-operative recovery period (Faurie & Khadra, 2012).

This point of *efficiency* and *quality* is one of those points that emphasize the craft character of surgery. It can be argued that the difficulty, or even impossibility, of introducing mass-production into surgery is a crucial dimension defining the surgical craft. Efficiency and quality are inseparable in surgery, where any compromise would create virtually lethal risks.

The *functionality* of a craft's output also implies that there is a specific group, a *clientele*, for which the production is aimed. The output should be designed and produced for the use, and benefit of that clientele. Therefore, the clientele's evaluation of the output is crucial. In the case of surgical craft, surgeons perform

their operations in order to provide health benefits for the patients. In other words, the usefulness of the surgical procedures applied on a patient should be experienced by that patient. The healing produced by the surgeon, however, can also be considered to have economic and social benefits beyond the individual patient. In terms of purchasing, however, business and government as the owners of the hospitals and employers of the surgeons emerge as the principal purchaser. The surgeons, therefore, are simultaneously confronted with separate clienteles: The patients and the purchasers. This aspect will be particularly important when defining the autonomy of the surgical craft below.

A further point regarding the output of a craft is related to the aspect of *peer-evaluation*. While the output is supposed to be useful, therefore should be subject to the evaluation of the clientele, it is also evaluated by the craftsperson (self-evaluation) as well as the crafts community (peer-evaluation). The craftsperson possesses control of the whole process of production, from conception to execution, and as a master s/he is in the best position to evaluate the subtle detail and the overall quality of the output. This aspect of self-evaluation is also related to the aesthetic and communal character of the craft as well.

2.2.3.iv Autonomy

In the context of work, *autonomy* refers to "workers' control over decisions related to their jobs" (Choi et al., 2008: 422). The factors that facilitate, enhance or undermine this autonomy constitute a major topic of debate in sociology of work. The concept of craft, on the other hand, occupies a significant place in these debates. Craft may remain in the background, as the pre-industrial form of working that dissolved with the spread of industrial forms of work. In this context, it is mostly a subject of nostalgia. On another level, craft may also be seen as providing an alternative horizon, an ideal of "good work". In any case, the characteristic of craft that is most significant in these debates is the autonomy that the master craftsperson has in the conduct of work. When the alienating character of capitalistic forms of work is

criticized, craftwork represents an alternative form in which autonomy prevails. The features that lead to this autonomy are the togetherness of conception and execution which gives the craftsperson almost extensive control over the labor process.

On this basis, surgical craft also refers to a type of work in which surgeons have extensive control over their labor process. This is indeed the case, at least for the senior surgeons –the masters. The complex and even esoteric nature of medical knowledge also strengthened the position of surgeon vis a vis the outsiders –the laymen.

Crafts are also always conducted within a *community*, with members of the community "participating in a shared practice". The craft communities were historically organized in *craft guilds*, and these guilds were able to govern themselves. The *professional organizations* of the modern era are generally regarded as counterparts of these guilds. In the case of surgeons, they are organized within general medical professional organizations as well as other organizations specific to surgical specialties.

An interesting feature of the professional association of surgeons is related to the historical continuity with the surgeon guilds of the medieval times. As Carr-Saunders and Wilson (1933) mention, technical process led to the strengthening of these guilds, in contrast to the trading guilds which ceased to exist, because "they were not engaged in trade; they were rendering personal services, and they did not need capital" (p. 294). The professional associations of today, therefore, represent continuity with these medieval guilds. This resemblance with craft guilds is further emphasized by Adler et al. (2007), while they also argue that the characteristics of the community of doctors are undergoing a transformation.

These organizations carry out various functions, providing platforms for communication, training and cooperation among their members. To the extent that they retain authority and independence in governing the affairs of the professional community, they provide the basis for professional autonomy. This autonomy refers, in brief, to the degree of independence from other societal forces, especially the state

and business. In other words, such a "professional autonomy exists where the state grants members of an occupational group a legal monopoly over a sphere of work", and this autonomy gives the occupational group the freedom "to exclude others who are not qualified, in the interests of protecting the public", as well as the right "to regulate its own training schools and educational curriculum" (Øvretveit, 1985: 80). This is indeed the case for medicine, which possesses the authority:

> [T]o direct and evaluate the work of others without being subject to formal direction and evaluation by them … sustained by the dominance of its expertise in the division of labour. (Freidson, 1970a: 136)

Comprehensive institutional and technical infrastructure is required for performing the craft. Such infrastructure, on the other hand, requires significant amounts of investment, funded by the public or private sources. Therefore, the surgeon is not independent from such forces as business or the state. Yet the surgeons, as part of the medical profession, and also within the world of medicine in comparison to other physicians, enjoy a high level of autonomy. In technical matters, the surgeon is often the ultimate decision-maker in deciding for the operation (starting with whether an operation is necessary, and feasible) and within the OT. The surgeon is at the top of the decision-making hierarchy in issues ranging from the decision for operation, the selection of materials to the conduct in the operation room. This autonomy is generally regarded to be correlated with the level of mastery.

Since medicine is divided into many surgical and non-surgical specialties, these specialties are also organized in themselves based on a similar guild principle. An important motivation for these organizations is support the interests of their members against others, including different specialties, related to the social closure and cartel formation characteristic of such organizations. The jurisdictional debates, or turf wars, among specialties is an example of this. In a Presidential Address at the Congress of the American Surgical Association in 2002, Debas (2002) provides a good example of this motivation:

> To be a key player in the management of chronic conditions, surgery must develop a strategic approach so that it is not relegated to the last position in the food chain. After all, surgeons play a critical role in the management of cardiovascular disease, cancer, diabetes, and joint and neurodegenerative diseases. (p. 264)

2.2.3.v Aesthetics and Creativity

The output of a craft must be useful, functional. In that sense, the clientele, the outsiders can evaluate it. However, there is a further dimension involved in crafts that is difficult for outsiders to recognize, evaluate or assess. This dimension could be called as the aesthetics of craftwork. The aesthetic consideration of the final product of a craft does not necessarily mean "beauty". What it means in this context is rather an "internal aesthetics", which refers to the subtle details that are not directly related to the functionality of the product, and could not be easily noticed by the laypersons (Kritzer, 2007: 325-326). The type of performance required to achieve such aesthetics, the attempt to go beyond what is necessary or good enough, is also related to "the desire to do a job well for its own sake" (Sennett, 2008: 9). This aesthetics add an artistic dimension to craftwork, but it is only possible once full mastery in skills and techniques is achieved. On the other hand, crafts "may easily be practiced without art, and still serve its purpose", while "the alliance of the two is a means of giving pleasure as well as serving utility" (Addison, 1908: viii). This aesthetical dimension also requires creativity on the part of the craftsperson, and the introduction of machinery does not necessarily enhance it. Creativity lies in the hands of the craftsperson: "Machinery gives speed, power, complete uniformity, and precision, but it cannot give creativity, adaptability, freedom, heterogeneity" (Yanagi, 1990: 108).

In surgery, one of the major factors that produce such an internal aesthetics is the fact that surgery has to be *case-specific*. The case-specific character of surgery demands the surgeon to apply the general medical knowledge to the case at hand, which is the result of clinical skills or judgment. This may also be linked to the skill of problem-solving. Moreover, a cycle of problem-finding and problem-solving is inherent to the practice of craftsmanship. In that sense, the surgeon must be skilled in detecting and solving problems, which frequently requires figuring out creative solutions.

As in all crafts, the perfection of a surgeon's skill and its reflection on the surgical operation can be best admired by the other members of the community of surgeons.

They are to evaluate the conduct of a surgery and its outcome as "beautiful". Indeed, the saying in Turkish, *şiir gibi ameliyat yapmak*,[19] relates to an operation that is beyond being decent in functional terms, and reflects the aesthetic concern of the surgeons. The young surgeon quoted by Cassell (1991: 11) gives a good example for such poetic skills: "He just had the most incredibly gifted hands. You could compare him to Michelangelo".

The notion of *good hands*, which is very common and important for surgeons, is directly related to this aesthetics dimension. It is the reflection of this dimension that appears in Cassell's observation of the "good hands" at work: "Everything looks easy, almost inevitable; the performance has a kind of rhythm, speed, and flow." Her conclusion about the artistic dimension that this adds to surgery is also significant:

> A technically gifted practitioner, then, may be perceived as transforming the craft of surgery into an art; such artistry can be admired and emulated, but never fully explained. (Cassell, 1991: 11)

A further point about aesthetics component is that, it refers to an *internal aesthetics*, whereby the real quality of the work produced by a craftsperson can be best evaluated and admired by other members of the craft community. In other words, the subtle details of mastery are usually difficult or impossible for the outsider to recognize; only those with a similar level of mastery can recognize and appreciate such details (Kritzer, 2007).

2.2.3.vi Character and Attitudes

It is common to attribute specific personality attributes to craftsmanship, as well as to specific crafts. The craftwork, on the other hand, is also associated with a particular attitude toward work. These attributes and attitudes are part of the skill that one acquires through apprenticeship and through the process of becoming a master.

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[19] The phrase can be translated into English as "making a poetic operation".

Also in the case of surgery, we can detect a number of personal traits and attitudes that are commonly observed among surgeons, and considered as an inseparable part of a "surgical personality" (Coser, 1958; Eisenberg et al., 1983). Indeed, in ethnographic and sociological studies on surgery, the personal characteristics and attitudes of individual surgeons are usually given significant attention (Cassell, 1991; Fox, 1992; Katz, 1999; Zetka, 2003). This is also a topic of interest for academic studies within surgery itself, since data on surgical personality is considered helpful for "resident selection, mentoring, evaluation and career counselling" (MacNeily et al., 2011: 182). Defined as "a standardized system of emotional attitudes", such personality traits can also be collectively named as "surgical ethos" (Cassell, 1991: 33).

The most obviously striking aspect of surgery, for the outsiders, is the extraordinary atmosphere of the OT. For the medicine student, it starts with the first practice with the cadaver in the applied anatomy courses. Throughout their education they are supposed to get used to the sight, sounds and smells related to the normal and diseased human body. For the surgical trainees, this necessity becomes more intense. They need to get used to work with blood, wounds, and learn to control their sensitivities for suffering or even dying people. These aspects of surgery, in the end, create a serious emotional burden. This need for a cold-blooded concentration on the work is regarded as a common feature attributed to surgeons, as exemplified in S. Freud's advice to his colleagues to consider psychoanalytic treatment similar to surgery:

> I cannot advise my colleagues too urgently to model themselves during psychoanalytic treatment on the surgeon, who puts aside all his feelings, even his human sympathy, concentrates his mental forces on the single aim of performing the operation as skillfully as possible. (as cited in Stepansky, 1999: 1)

Surgery is also particular in demanding great amounts of physical endurance. Operations may last for many hours, and surgeons cannot leave the OT for any personal needs. In addition, since surgery entails enormous responsibility and risk, they also have to deal with great amount of stress. Risks during the operation exist for both patients and the surgeons themselves. Stress may also lead to emotional

breakdowns, leading to a disruption of the operation and putting the life of the patient at risk. Therefore they need to be untiring, invulnerable, cold-blooded and ready for all kinds of contingencies.

The need for the surgeon to give clear and quick judgments both before and during the operation also emphasizes certain personal attributes. Indeed, surgeons are commonly regarded as decisive, action-oriented and courageous (Katz, 1999), brilliantly summarized by Cassell (1991):[20]

> Although processes, such a preoperative and postoperative care, vitally affect the outcome, the act of surgery occurs in a measurable and limited period of time. An operation does not unfold; it occurs. It is performed. The threat of death is always present. At the operating table, surgeons are rarely allowed the luxury of second thoughts; they cannot try a treatment, see if it works, augment or alter it, and then, if their first attempt is unsuccessful, try another approach. The surgeon must exhibit decisiveness, certitude, control; emergencies must be resolved, unexpected findings anticipated, small advantages exploited. (p. 35)

Surgery is also a craft in which the results are immediately observable, and apparent. In many cases, such as heart surgery, the patient's life may be at stake; and even without this life-and-death situation, the effects of surgery on the patient can be easily seen, such as in orthopedics. This immediate nature of the output, therefore, is commonly considered to give a *result-oriented* character to the surgeons.

The requirement for certainty and result-oriented attitudes particular to surgery is reflected in the difference between physicians and surgeons. According to one of the earliest studies by Coser (1958), this characteristic of surgery was the reason for the difference in decision-making processes in medical and surgical wards. In contrast to medical wards where decisions were mostly made through discussion and consensus among doctors, Coser observes a structure of unquestioned authority in the case of surgery.

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[20] This need for certainty at all times in surgery is reflected in popular sayings, variously formulated as "a surgeon is sometimes right, sometimes wrong, but never uncertain" (Katz, 1999: 26); or "Sometimes in error, never in doubt." (Cassell, 1991: 37)

The whole process of treatment of a patient, from the diagnosis to the operation, includes continuous check-lists, starting with the strict rules of hygiene at the OT. All these procedures require strict adherence to rules and codes of conduct. In this sense, a *perfectionist* attitude in the conduct of each and every piece of task constitutes an intrinsic part of surgery, giving surgeons an exceptionally perfectionist attitude. For instance, the tensions, shouting, aggressive behavior that are well-known to exist in the operating room can be attributed to the perfectionism of the surgeon, as well as to the vitality of the job being done or the hierarchical division of labor.

The success in surgery, in sum, depends on the skills, judgment, and performance of the surgeon. Therefore, the extent to which an individual surgeon possesses the features of surgical personality is significant for the quality of the output. Given that, surgery is a quality-driven work, it is not surprising to observe the obsessive, perfectionist attitudes in surgeons, which Sennett (2008) attributes to craftsperson (pp. 244-245). This is again in accordance with the need for strict adherence to rules and procedures, obsessive attention to detail, and practical problem-solving skills in surgery.

Craftsmanship is also associated with a sort of *pride* that the craftsperson feels with regard to the craft. This is a shared feature of all crafts, whether it is pottery or law (Scharffs, 2001: 2309-2310). This feeling of pride is "pride in a job well done for its own sake" (Twining, 1993: 149). Similarly in the context of law, Elkins (1984) contrasts the ethical dispositions of professionalism and craftsmanship; associates the latter with *humility*, and the first with arrogance. As the personal attributes of surgeons mentioned above suggest, both arrogance and humility can be observed in this group. Indeed, the features attributed to surgeons such as endurance, courage and decisiveness are translated into masculine, aggressive and arrogant attitudes (Cassell, 1986, 1991; Katz, 1999). A striking example of how pride may turn into arrogance is given in a joke quoted by Katz (1999): "Question: What is the difference between God and a surgeon? Answer: God knows that he is not a surgeon." (p. viii)

The past, the tradition accumulated by the past generations is a significant defining part of all crafts (Scharffs, 2001). Surgery has historically been one of the oldest crafts, as symbolized in the Hippocratic Oath, as well as in the etymology of the word itself. This historical dimension of crafts is also associated with a *conservative* stance, whereby each generation of apprentices are expected to follow in the steps of their masters. This does not necessarily mean that *innovation* is absolutely rejected, but that it should advance incrementally. The celebration of the legacy and conservative stance of surgery can be seen in Debas' words (2002)

> It [surgery] has disciplined itself over the centuries and dedicated its practice to the best welfare of all human beings. In return, it has been accorded the respect of society, of other professions, and of policy makers. Its conservative stance has served it well and has been the reason for its constancy and consistency (p. 263).

An example of an innovative surgeon facing difficulties is Nezhat's efforts introduce laparoscopic surgery in American gynecology. In early 1980s, Nezhat was one of the first advocates of laparoscopic surgery, and the great part of the surgeon community took a conservative stance toward this new technique. The underlying reason was that the radical nature of the proposed change, which required "an entire surgical discipline to relearn how to perform surgery" (Page et al., 2008: 1). The life-saving function of surgery, as well as its perfection in its skills made it difficult for the craft community to accept changes, particularly when they radically change the nature of work. This is in part paradoxical, because the modern history of surgery is full of innovations, inventions and spectacular new techniques. However, a craft-like attitude exists in response to innovation, expecting it to be incremental, and not disruptive.

On a more philosophical level, craftwork is also associated with the notion of "good work", in which a work that has the attributes of craftwork also provides the person with the possibility for *self-realization*. The concept of self-realization can be found in various traditions of thought, both historically and contemporary. Elster (1989), for instance, formulates the Marxist conception of self-realization as "the full and free actualization and externalization of the powers and the abilities of the

individual" (p. 131). In Marx's own writing (1993), this self-realization aspect of "real free work" is described as such:

> It seems quite far from Smith's mind that the individual, 'in his normal state of health, strength, activity, skill, facility', also needs a normal portion of work, and of the suspension of tranquility. Certainly, labour obtains its measure from the outside, through the aim to be attained and the obstacles to be overcome in attaining it. But Smith has no inkling whatever that this overcoming of obstacles is in itself a liberating activity –and that, further, the external aims become stripped of the semblance of merely external natural urgencies, and become posited as aims which the individual himself posits –hence as self-realization, objectification of the subject, hence real freedom, whose action is, precisely, labour. (…) Really free working, e.g. composing, is at the same time precisely the most damned seriousness, the most intense exertion. The work of material production can achieve this character only (1) when its social character is posited, (2) when it is of a scientific and at the same time general character, not merely human exertion as a specifically harnessed natural force, but exertion as subject, which appears in the production process not in a merely natural, spontaneous form, but as an activity regulating all the forces of nature. (pp. 611-612)

Based on this understanding, Elster (1989) elaborates the concept of self-realization, by arguing that it has two components: Self-actualization and self-externalization. These components together mean that an individual reaches self-realization not only by developing and deploying her powers and abilities, but these should be deployed in the public domain, and be subjected to evaluation by external criteria. When "other people perform the indispensable function of assessing, criticizing and praising one's performance", when it is esteemed by others, the individual gains *self-esteem* (p. 137). Such a self-esteem that would accompany the process of self-realization can be considered as a possible outcome of craftwork. Elster also mentions craftwork among the examples he offers (1999: 65).

The widespread observations of a self-confident standing in surgeons may be seen as a reflection of such self-esteem. Ideally, the admiration of people that surgeons enjoy is a consequence of their hard-work, concentration in one specific field, overcoming obstacles and producing observable output open to evaluation by external criteria. Therefore, the surgical craft provides the opportunity for a self-realization as defined above.

In conclusion, the detailed descriptions of components listed above are intended to establish the craft character of surgery, and define its contours and basic features. It should be noted that the surgical craft and its components are defined with regard to

an ideal type definition. This point is crucial, since a series of caveats should be noted. No dimension or component of this definition of surgical craft exists in absolute terms, and they are not immune to contradictions and inconsistencies. What is more, such an ideal typical definition does not imply an uncritical celebration of surgery or surgeons. Therefore, the craft character of any work cannot be observed in an absolute way, rather it would be a matter of degree. In the case of "surgical personality", for instance, the revered personality traits of craftsmanship are also subjected to change and criticism. While some of those traits are deemed indispensable, and are justified and normalized in this way, they may have also adverse effects with respect to the rest of the staff and health and safety of patients, such as bullying or "disruptive behavior" (Stevens, 2013).

The table below summarizes the components of surgical craft and the sub-components that they include. While the framework is developed to reflect the basic characteristics of the surgical craft, it is also in line with other definitions of craft offered in various literatures, and therefore, can be considered as suitable for describing other crafts as well.

Table 3: Components of Surgical Craft

SKILLS AND TECHNIQUES	Indivisibility of conception and execution Making by hand Tacit knowledge Judgment
MASTERY – APPRENTICESHIP	Training Hierarchy Mimicry Commitment Workshop
OUTPUT	Utility, usefulness, functionality Healing Efficiency or quality Clientele Self-evaluation
AUTONOMY	Autonomy at work Craft community – Guild – Professional organization Autonomy from state, market, patient
AESTHETICS AND CREATIVITY	Case specific work Good hands Internal aesthetics
CHARACTER AND ATTITUDES	Result-oriented Perfectionist Pride and humility Conservative vs innovative Self-realization and self-esteem

Source: Author

2.3 Surgery as a *Technology-Driven Craft*

The surgical craft has a particularly intricate relationship with technological change. As the historical evolution of surgery summarized above indicates, the development of new technologies in an increasing pace was a crucial factor in defining the modern composition of surgery. In order to reflect this specific character of surgical craft, this section will propose the concept of *technology-driven craft*. For this aim, the section will focus on the direct effects of technological change on the conduct of surgical craft. In this context, the major milestones include the sophistication of endoscopy, the advent of the digital imaging technologies, and the emergence of Minimally Invasive Surgery (MIS) as a consequence.

In a general sense, medical technology refers to "a drug, device, or medical or surgical procedure used in medical care" (Cook-Deegan, 1988: 134). In other words, medical technologies include technologies that are "designed to understand, diagnose and treat disease, acute and chronic illness, and physical and psychological disorders, as well as to try to prevent such pathologies arising in the first place" (Brown & Webster, 2004: 4). They encompass, therefore, a wide range and variety of items, and the increasing complexity of technologies and devices required systematic coding and nomenclature.[21] In the case of medical devices, for instance, it is estimated that there are around 400,000 different devices collected in 10,000 device families, justifying the argument that "contemporary healthcare is technological healthcare" (Faulkner, 2008: 13, 32).

In the case of surgery, there is a great variety of tools, instruments and devices used for various types of tasks –such as grasping, occluding, retracting and exposing, cutting and dissecting, positioning, sucking, sealing, injecting or measuring. Some of these are the standard surgical instruments, in use for a long time, including scalpels,

[21] The GMDN (Global Medical Device Nomenclature) is currently the most important system of nomenclature, which is "based on the structure of an international standard used to name, define, and code medical device products for data exchange between competent authorities and others, exchange of post-market vigilance information, research, medical record keeping, e-commerce and inventory purposes." ("GMDN Agency", 2010).

scissors, needle holders, forceps, retractors or towel clamps. There are also more recently developed technologies, ranging from heart-lung machines and pacemakers to artificial tissues. With the increasing pace of technological development as well as their global diffusion, the processes of innovation, adoption, and diffusion of surgical technologies are being shaped by the complex interaction of various forces, including the medical staff but also governments, medical technology industries, private insurance companies, hospital administrations and civil society organizations or health advocacy groups. Therefore, innovation in medical technologies has become a topic of great interest in social sciences (e.g., Brown & Webster, 2004; Faulkner, 2008; Webster, 2006), and surgical technologies and devices constitutes a significant part of it (e.g., Metcalfe & Pickstone, 2006).

The most significant impact of the innovation in imaging technologies was that they enabled more precision in diagnosis, which also caused changes in a surgeon's contact with the patient's body. Before the development of sophisticated imaging technologies, surgeons relied more on their tactile skills, and they had closer contact with the body. The holistic conception of the body and diseases prevailed. What the available techniques of diagnosis lacked was precision. Until 1960s, surgeon's direct contact with the patient was primary:

> With their hands, they touched, palpated and estimated the elasticity, resistance, and mobility of masses that they characterized using analogies (the size of an orange, of a melon, the consistency of a tennis ball). Additionally, they assessed the abdominal guarding and contracture that, together with the cry evoked by their touching the pouch of Douglas, demonstrated peritonitis. With the help of often ingenious mechanical tools, they compressed, dissected, and operated, maintaining direct physical contact with the patient and his organs, whose color, temperature and consistency they assessed. (Villet, 2011: e1)

The following excerpt from a neurosurgeon's recollections reflects how limited diagnosis and treatment tools were, in the absence of advanced imaging technologies, compelling the surgeons to engage in tiresome procedures before these advanced imaging technologies:

> The first milestone in neurosurgery was the computerized tomography (CT). (…) We did not have the chance to open up [the brain] and have a look, unlike the other specialties. Our priority in diagnosis had to rely on competence in neurology, because the science of neurology is like mathematics. If you figure out the right point, you will

> find it. Second, there were some additional things … For instance, scanning the spine. You took a normal X-ray, and found nothing in the bones, but you wanted to see inside, the spinal cord. We would do an injection on the upper back. We would enter with a big injector called lumber function and inject an opaque substance. So we would make the inside visible, and by turning the patient upside down in order to scan the movement of the medication. Then we would take X-rays of the places it stuck. (Field notes, October 2012)

The introduction of imaging technologies, therefore, enabled precise and correct diagnoses before engaging in an operation, limiting the number of unnecessary interventions. When imaging replaced the surgeon's touch, moreover, diagnosis transformed into a more technical task, less based on the surgeon's judgment and intuition. Furthermore, some of these imaging technologies can also be used to treat certain diseases, making surgery unnecessary -such as high-intensity focused ultrasound, thermal directed systems or microwave instruments (Rosenberg & Schlich, 2012: 7).

The outcome of the improvements in video technologies was reflected in endoscopy and other methods of looking directly into the body. Endoscopy and laparoscopy are two imaging techniques that made great impact on the surgical craft. Endoscopy means the inspection of the inside of the body by inserting optical devices through natural orifices. Laparoscopy, however, requires intrusion into the abdomen through a small incision, through which optical devices are inserted into the abdominal cavity (Ayşan, 2012). Both techniques had been developing for more than a century, but real breakthrough occurred during 1980s and 1990s, with the help of video technology. When miniaturized cameras able to transmit magnified images on monitors could be inserted in both techniques, the ability to diagnose was radically enhanced. The addition of the ability to conduct other tasks –such as cutting, dissection or removal- through these channels transformed surgery in a revolutionary way (Zetka, 2003).

The radical transformation in surgery, brought by laparoscopy and endoscopy, was the emergence of MIS: "It is likely that history will judge the impact of MIS on patient-care practices and healthcare economics on par with the introduction of antibiotics for surgical patients" (Park & Lee, 2011: 11). This change was radical because it altered the whole way of doing surgery, and compelled surgeons to

acquire new and characteristically different skills. In other words, it caused a "skill disruption" for surgeons, with implications for division of labor in the operating theatre, division of jurisdiction among various specialties or the training of new surgeons. The benefits for the patient are obvious: Negligibly small scars instead of long incisions, meaning less possibility of post-operative complications, shorter duration of operation, and shorter stay in the hospital (Patel & Notarmarco, 2007; Zetka, 2003). These points demonstrate that the introduction of MIS has been regarded positively by all actors included; it was in line with surgeons' principle of causing the least possible harm to the patient; patients benefited from less suffering and shorter hospital stays; for the hospital administrations they resulted in effectiveness in the use of operating rooms and hospital beds, and increased volumes.[22]

In laparoscopy, basically the same procedures are applied, yet differences are significant. All the instruments used in classical surgery are reproduced in the form of ports, or "chop sticks", each 30 cm in length, and 1 cm in width. The surgeon's hands no longer have direct access to the organs or the inside of the body, and the surgeon has to conduct the operation by looking at the two-dimensional image on the screen. In contrast to the traditional open surgery, which is characterized by surgical judgment, manual skills and large incisions, MIS includes small incisions, decoupling of visual and manual skills, loss of depth perception and tactile sensation (Ayşan, 2012; Dijck, 2001; Prentice, 2005; Zetka, 2003). Similar to other cases of innovation, first attempts to introduce laparoscopic techniques were resisted. It was

[22] This radical change for surgery was not without resistance. The difficulties in persuading surgeons is described by Page et al. (2008):

> However, getting to this point of general acceptance – a process that is not even complete yet – actually took years of persistent insistence and ingenuity. To actually breathe life into video-laparoscopy, an entirely new way of operating had to be envisioned and accepted into the fold of convention. Yet, to convince an entire surgical discipline to relearn how to perform surgery was no walk in the park. We all know, of course, that attempting to convince surgeons to do anything against their will is a headache in the making. But especially to force upon their heads a change so radical – that of shifting their sacred line of vision – was like courting a collision with catastrophe. (p. 1)

against the general association of surgery with large incisions, and it required a re-learning process for large numbers of surgeons (Cengiz et al., 2011: 3)

Robotic surgery, or computer-assisted surgery, is basically an extension of laparoscopic surgery. In this case, the mechanic ports to be inserted into the body are controlled by a robotic machine instead of the surgeon and assistant surgeon, and the surgeon conducts the operation apart from the patient's body, sitting in front of a console and looking at a screen. In comparison to laparoscopic surgery, robotic surgery offers the possibility to overcome "the limitations of long instruments with few degrees of freedom" (Villet, 2011: e2). In terms of skills required or the benefits to the patient, there are no significant differences between robotic and laparoscopic surgery (Cormier, 2011; Griffen & Sugar, 2013; Guillemin, 2011; Hockstein et al., 2007).[23]

The effects of MIS on surgical craft, in conclusion, can be summarized in the following points:

Skill disruption: In classical surgery, the surgeon would open a large incision that would enable her to reach the organs with hands, would have a clear vision of the operation area together with the touch feel, conduct the necessary tasks by using the necessary instruments, and when finished, close the body by suturing the incision. In MIS, in contrast, the surgeon makes small incisions, inserts the ports into the abdomen, follows her own movements and the operating area on a screen, conducts the necessary tasks by directing and coordinating the ports, when finished pull back the ports, and the incisions are closed with a few sutures. In terms of surgeon's skills, the primacy of good hands is replaced with the need for an "artistic eye", the three-dimensional vision replaced by two-dimensional images on a screen, which requires the surgeon to reformulate her knowledge of anatomy (Zetka, 2003: 7-29).

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[23] The benefits of robotics surgery are still debated. While some believe it promises great improvement and concrete benefits to the surgeon, others point out that it has not yet proved its superiority compared to conventional laparoscopy, and given the high price, its adoption may be too expensive while providing little benefits. (Compare, for instance, with Guillemin, 2011; Griffen & Sugar, 2013).

Division of labor: In the open surgery, surgeon was primary, with minimum "dependence on the skills of surgeon assistants and nurses". The closed surgery, however, entails more complex interaction, and the surgical assistants are required to become more active (Zetka, 2003: 41-43). An interesting observation about the effects of increasing technology is that it causes "intensification of labor" in technology. According to Johstone (2005), this is especially the case for those on the receiving end of technological development:

> All of these phenomena … contribute to the labour intensification of surgical production and add to the complexity of work for *receivers*, particularly OS [operating suite] nurses and SD [sterilizing department] technical aides whose work is trans-disciplinary. (p. 37)

Changes in jurisdiction: Endoscopic techniques can be coupled with minor interventions. Therefore, non-surgeon physicians licensed to conduct endoscopies also started to do such interventions, limiting the jurisdiction of surgeon. A similar case is observed among cardiologists and cardiac surgeons. The introduction of the technologies of angioplasty and coronary artery stenting meant that certain procedures could now be carried out by cardiologists instead of surgeons. The impact of this change could be observed in Cohen (2007). In this article, Cohen considers these new technologies as similar to "disruptive technologies" that create challenges for various industries and organizations; and taking the specialty of cardiothoracic surgery as an enterprise or business, offers advices on how to cope with this disruption.

> Those who cannot adapt will disappear, but the changes will nonetheless happen. It is better for us to be open-minded and flexible in our organizational structures so that we will control our own professional destiny. Based on the business models outlined here, it is my premise that cardiothoracic surgery is at the crossroads between sustaining and disruptive technological innovations. As a discipline, cardiothoracic surgery must now choose between adaptation and controllable change as opposed to stagnation and obsolescence. (p. 7)

Training: As the MIS techniques require a different set of skills, the training of surgical assistants also underwent drastic changes. The traditional form of training, which had stayed "more or less unchanged for over a century", is mostly based on "supervised trial and error" (Valero et al., 2011: 543). Residents learn the details of the craft in the operating room, "working on actual patients under the close supervision of an attending surgeon" (Prentice, 2005: 837). By using digital imaging

technologies and computers, however, virtual teaching and practice tools have been developed for surgery. With such tools, surgical assistants practice in a simulated surgery, conducted on the screen. The need for "hand-eye coordination training with endoscopic instruments" is another factor in the development of surgical simulations (Leonhard & Irion, 2011: 399). The use of simulations have various advantages; they provide familiarity with new MIS technologies, decrease the possibility of harm to patients, and provide more effective use of operating rooms (Debas, 2002; MacIntyre & Munro, 1990; Prentice, 2005). Such methods of training may also be expected to affect the master-apprentice relationship. Another effect of video technology has been the availability of operation videos on the Internet, accessible also for surgical students.

The transformation caused by the emergence of MIS is crucial, but its scope is limited and does not cover all surgical specialties or all types of procedures. In certain specialties, MIS has very little or no existence, such as cardiovascular surgery and orthopedics. The primary factor limiting the use of minimally invasive techniques in such specialties is the greater need for manual manipulation. In other words, there is more work for the hands, hence the need for larger incisions, so that hands can reach the organs, tissues or the bones.

In the light of the diffusion of more and more advanced technology in surgery, there may be a need to re-evaluate the craft characteristic of surgical work. In the social scientific literature on work, technology and craftwork are generally considered to be in a conflictual relationship. Since the start of industrialization, technological development has been accompanied by the division of production processes into smaller parts, increasing mechanization, decoupling of conception and execution, and so on. The common impact of these changes on almost all types of work has been the weakening of the craft dimension, a change implied by the concept of deskilling. Therefore, turning back to surgery, it would be reasonable to question whether similar changes have occurred also in this field, or rather the occupation retained its craft characteristic.

The general development of technology and industry did not necessarily result in the dissolution of all kinds of craftwork. On the contrary, it is possible to observe craft characteristics in those occupations that are generally considered to be irrelevant to craftsmanship. Some of these occupations themselves are products of new technologies, and some include the professional occupations that are generally studied within different frameworks. Surgery, in this context, presents an interesting case. Surgery, as part of medicine, is both a profession and a science. It is also an applied science, making it similar to engineering. Therefore, it could be studied within the frameworks of sociology of professions, sociology of science, or science and technology studies. Medical profession, furthermore, is increasingly analyzed under such topics as deprofessionalization, deskilling or proletarianization. However, surgery is also a craft, in the sense of the unity of conception and execution, manual and mental work. So it represents an exception with regard to other professions and scientific endeavors.

When surgery is defined as a craft, on the other hand, many of its characteristics make such an identification look awkward, especially with regard to those works that are usually accepted craft without doubt. Primary among these of course is the intensive use of technology, to the extent that now there is "robotic surgery". The history of surgery clearly demonstrates that it was the rapid development of technology in the industrial era that made surgery such an important and prestigious occupation, far from its identification with barbers in the previous ages.

The definition of surgery as science or craft is a topic that frequently emerges in debates within the community of surgeons. The opposition between "science" and "craft/art" has been a key aspect of many debates within the profession throughout the twentieth century. The introduction of new technologies may cause such episodes of debate, especially between younger surgeons advocating for change, and those that oppose radical change. The more recent developments in medicine in general, toward "evidence-based medicine", intensify this debate even further, apparently giving more weight to the surgery-as-science argument (Timmermans & Berg, 2003). The story of *osteosynthesis*, in 1950s and 1960s, is an illuminative example in

this context. In this case, the advocates of the new technique employed a discourse based on surgery-as-science:

> Fracture care, they proposed, should no longer be empirical but rational. Like a well-devised and well-performed laboratory experiment, the outcome of every single surgical intervention was to be reproducible, independent of the person who performed it. (…) Perfect reproducibility could be achieved, the AO[24] surgeons realized, if every gesture, every instrument, and every implant was strictly standardized. (Schlich, 2007: 74)

The opponents of the method at the time, however, took a more traditional position, defining surgery as a craft, rather than a universalistic science:

> The key to good surgical practice was to adopt one's procedure to the particularities of the individual case at hand. On this basis, they warned against the strategy of collecting outcome data and using them as a basis for balancing potential profits against potential dangers to calculate risk on a generalized level. (…) The deleterious effects of a complication on the affected individual was reason enough for the critics to reject osteosynthesis altogether (…) This means that they rejected the strategy of making dangers calculable by framing them in a quantitative and probabilistic manner that is the very basis of the modern notion of risk. (Schlich, 2002: 75)

Schlich's account of the case, as well as the eventual success of the proposed orthopedic technique, might be regarded as weakening the argument for surgery as a craft. Indeed, the opposition based on the craft argument can be considered as a conservative attitude combined with possible financial or other group interests. Still, the following excerpt from Schlich also shows that, even within a science framework, surgery continues to include craft characteristics:

> (…) surgeons knew that learning how to apply osteosynthesis techniques was not like transferring data from instructor to user, but entailed rather a change in the person of the user. It is a kind of active enculturation of the user who has to collect information on principles and rules while also acquiring tacit knowledge, skill and a 'feeling' for the method. By making this basic problem one of their central concerns, the AO surgeons gained the credibility and trust that finally enabled them to extend their network all over the world. (p. 85)

The high pace of technological change in surgery may also seem to be in contradiction with the incrementalism inherent in craftsmanship. In explaining the difference between art and craft, Sennett (2008) refers to the long period of times necessary for the "bedding-in of a practice, in which the actions of the hand

[24] AO refers to the *Arbeitsgemeinschaft für Osteosynthesefragen* (AO/ASIF), or the *Swiss Association for Internal Fixation* in English.

gradually become tacit knowledge" (p. 123). In the case of surgeon, however, technological change occurs quite fast, and surgeons are required to continue acquiring new skills throughout their career. Still, Sennett's example of the introduction of "the wheel spinning on a pivot" in pottery can be considered as parallel to the introduction of MIS in surgery. MIS compelled great number of surgeons to acquire new skills, to learn a new way of conducting surgery, and this occurred in quite a short time-span. The extensive and, for the surgeons, dramatic impact of this transition can be seen to enhance the definition of surgery as a craft. That is, surgeons should experience a process in which they gain the new form of hand-eye coordination, to the extent that it turns into tacit knowledge.

On the basis of these considerations, the argument of this study that surgery should be defined as a craft remains valid in the face of the technology-driven character of surgery, because it continues to embody the characteristics of that surgical craft definition. In order to include its peculiar relationship with technology, which differentiates it from other, digital or professional, crafts of the modern era, it would be meaningful to define it in a separate category, as a "technology-driven craft". Such a classification could be useful by encompassing the intense relationship between surgery and technology, as well as the craft characteristic of surgical work.

CHAPTER 3

SURGICAL CRAFT IN A CHANGING CONTEXT: STATE, MARKET, PATIENT

The identification of components of surgical craft provides a framework for analyzing the interaction of the surgical work with technology, since technological changes may have differing impacts on various aspects of surgical craft, sometimes enhancing each other and sometimes contradictory. The components defined in the previous section, as well as surgery as a whole, do not interact with technology in a social vacuum, free from the effects of other factors. As a human activity "conducted by actors in social contexts", as Fox (1992) underlines, surgery "is not 'just' surgery, just a technical intervention"; and "[t]his relationship between the technical and the social is important in two ways, both of which must be of interest, not only to a sociologist, but to anyone concerned with surgery, as practitioner or patient" (p. 2).[25] Furthermore, the production and introduction of technology, in medicine or other areas, are not automatic or neutral processes. They are imbued in social, political, economic or cultural contexts; they "are embedded in society and thereby shape

[25] This aspect is elegantly summarized by Webster (2007):

> A sociological perspective argues that these technologies and the techniques, models and assumptions on which they are based, are given meaning through the way they are tied into other technologies and social practices. This is true whether they appear in the most mundane (such as the stethoscope) or the most exotic (say the MRI scanner) of forms. The meaning of health technologies will also vary in different settings (from the clinic, to the home, to the Internet), and vary in the way they shape diverse notions of 'health' found within and between cultures. In this sense, technologies (not only of health but all fields) are best understood as an expression of, and thereby always expressed through, social relationships. (p. 1)

institutions, relationships, and values" (Johnson & Wetmore, 2009: xiii). This point is well emphasized in the STS literature (Wajcman, 2002). Works on surgery that reflect on its "social meaning", or the social context of innovation and adoption of medical technologies reflect this understanding (e.g., Blume, 2013; Brown & Webster, 2004; Elston, 1997; Lauritzen & Hyden, 2007; Schlich, 2002; Stanton, 2002; Tilney, 2011).[26]

The historical evolution of surgery outlined in the previous chapter was accompanied by the institutionalization of medicine in the form of hospitals, governmental bureaucracies, occupational organizations, regulations, and so on. The development of surgical techniques and technologies occurred against the background of the institutionalization of healthcare services at national scales. The changes in medicine and surgery throughout the 20th century demonstrate the close link with the evolution of technology in the same period. The well-documented history of the evolution of the health sector in the advanced industrial states shows that technology plays a key role in these interactions. Whether seen from a technology-determinist perspective or from a social-constructivist perspective –in which technology is shaped in social relations of power, profit and trust (Adler & Kwon, 2008)- the surgical craft is shaped and modified in its interaction with technology, while technology shapes and is shaped by these factors. This history provides the background in which the surgical craft, as part of the general category of medical staff, interacted with societal factors, which can be analyzed in three levels: *State, market,* and *the patient*.

The first section of the chapter will deal with the emergence and transformation of nation-wide health care sectors. The historical evolution demonstrates a swinging pendulum between the state and the market. During the 20th century, as complex and extensive healthcare systems emerged, states played the major role in shaping, regulating and also funding these systems. Towards the end of the century, however, the pendulum moved towards the other end as the private actors started to play

[26] For a review of the contact of medical sociology with technology, see Casper and Morrison (2010).

greater roles.[27] This evolution is mostly in parallel with the evolution of welfare state systems. Consequently, state and market constitute two pillars of health care systems.

In the following section, the patients will be added to state and market as a third dimension. The changing attitudes and expectations of the patients are increasingly given more emphasis. In sociological studies of health and medical profession, the role of patients evolved from the "sick role" defined by Talcott Parsons (1951) to their subordinate role vis-à-vis the professional dominance defined by Eliot Freidson (1970a, 1970b). The impact of consumerism on health, the emergence of social movements in health, and the effects of new information technologies helped patients play a more active role. Currently, the role of patients is debated with reference consumerism and the increased accessibility of medical information for the layperson. The evolution of patient's role in medicine will be the topic of the second subsection.

The most relevant issue, with regard to surgery, is the role of technology in this general social context, because surgery plays an important role in the demand for intensive use of technology in the provision of health services. The changes in the organizational settings of surgeons, the funding of surgical services, the demand for surgeons and surgical services from the health sector and the patients are the major topics in this context. The second section, accordingly, will summarize the consequences related to surgical craft that emerge from the first section. This summary will provide the basic dimension in order to contextualize the surgical craft within a three-dimensional context that includes the three categories of state, market and patient. The section will be concluded with an analytical framework that defines the interaction between technology and surgical craft in their relations with these three levels.

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[27] This does not imply a total shift, and the two poles of state and market do not exclude each other. Also, there are great varieties across different countries. Therefore the relative shares of the state and the market change both in time and from place to place. But the pendulum metaphor is still relevant, because it defines the general trend.

In order to describe how the processes outlined in the three sections are reflected in the case of Turkey, a final section will review the social context of surgery in Turkey. This section will also provide a background for the field work among surgeons in Turkey, offering a summary of the historical evolution of the healthcare system in Turkey. The recently enforced transformation program that dramatically changed many aspects of the system will be given particular emphasis.

3.1 The Healthcare System: From Welfare State to Commodification of Health

The history of modern medicine started with the early scientific innovations in 18th - 19th centuries and continued with the emergence of modern hospitals and the medical professions. Throughout the 20th century, states became involved in healthcare as producer, regulator and funder. With the advances in medical technologies, medicine became more effective and demand for healthcare increased. In response to this increase a private healthcare sector also developed as private hospitals, medical device suppliers and private insurance firms proliferated. In the end, medicine has turned into an enormous global industry, while healthcare developed into complex systems organized at national scales.

The story of health and medicine, particularly in the European context, is closely connected to the development and recent weakening of the welfare state. Welfare states started to develop in the 19th century and acquired their most developed form in the aftermath of the WWII. The characteristics, extent and historical evolution of these welfare systems took different shapes in different countries. In its most general sense, welfare state refers to a major role of the state in the production of public and social services. These services range from education and health to housing or social insurance (Bambra, 2009). Within these welfare states, health services have always been a major component, as reflected in Moran's words: "Health care looms large in the modern welfare state, and states loom large in modern health-care systems" (2000: 139). Even where welfare state was not well developed, such as the US, and private provision of health services is dominant, states were compelled to play major roles because "public policy pays for and regulates so much of it" (Weissert &

Weissert, 2012: 1). In the end, extensive "healthcare systems" evolved, while healthcare and medicine also developed as a major industry. This connection also implies that health care systems represent a wide variety in kind along with the types of welfare state systems.

The period starting in 1950s is the most relevant period for the aims of this study. The major topics to be emphasized in this period include: The maturation of the welfare state systems, the increasing share of health expenditures in the GDPs of most countries, the emergence of information society, and the more recent trends of post-Fordism and neoliberalism. In the case of medicine, these general trends are reflected in the rise and fall of professional dominance, corporatization of healthcare and more recently the increasing marketization of healthcare in the neoliberal era.[28] It is also the period when medical technologies have begun to develop at a faster rate.

The period from 1950s to 1980s is a time when welfare state systems were ascendant. Healthcare played an important role in this ascendance. Along with other public services, the increasing public provision of funding of health services constituted a part of the "de-commodifying" effect of welfare states, whereby "a service is rendered as a matter of right, and … a person can maintain a livelihood without reliance on the market" (Esping-Andersen, 1990: 21-22). As the coverage and content of health services grew, however, the expenditures also grew. How these expenditures were shared among the state, the employers and the household differed according to the type of welfare state system.

The general trend in classifying the healthcare systems is mostly based on the variations between the ideal types of Beveridge and Bismarckian models. According to the common typologies employed in the literature, healthcare systems are classified according to how services are provided and funded (Blank & Burau, 2007: 10-14). The OECD's (1994) classification, for instance, places healthcare systems on

[28] The evolution of healthcare sector has been analyzed and criticized in various frameworks, with various concepts such as "medical dominance" (Freidson, 1970a; Øvretveit, 1985; Wollinsky, 1988) to "medical-industrial complex" (Relman, 1980, 1983), "medicalization" (Conrad, 1992, 2005, 2007) or "corporatization" (McKinlay & Stoeckle , 1988; Starr, 1982; Waring & Bishop, 2013).

a continuum ranging from a free market system to a monopoly of the state. Between these two extremes, the existing systems are divided into three categories: *Private insurance*, *social insurance* (the Bismarckian model), and the *National Health System (NHS)* (the Beveridge model). Other classifications also rely on the same logic, but label the categories differently. Moran (1999, 2000) offers a classification of "healthcare states", and defines three categories as *supply*, *corporatist*, *command and control*, yet the scheme is parallel to the OECD'S classification as well as the triple classifications of welfare states. Navarro (1992, 1999) similarly offers a threefold classification as *liberal*, *social health insurance*, and the *NHS models*. These classifications mostly parallel the welfare state typologies predominant in comparative studies, particularly the threefold classification produced by Esping-Andersen (1990): *Liberal*, *conservative*, and *social democratic*. Esping-Andersen classified welfare states on the basis of the level of de-commodification, the level of social stratification and the private-public mix in the provision of services.

The idea of health as a "right" rather than a commodity was most prevalent in social democratic systems, where healthcare services were organized in the NHS style. The most developed examples of such systems are observed in the UK and the Nordic countries.[29] In these systems, services are funded from the general budget, and patients do not need to pay. All the population is covered without any requirement of insurance payments. At the other end of the spectrum were liberal models, with the US being the clearest example. In such a system, public insurance is valid for only part of the population (the elderly and the poor, for instance), while private insurance and out-of-pocket payments by patient are common (Moran, 2000; Starr, 1982). The social insurance systems observed in corporatist welfare states, such as Germany, required employees to be insured, and insurances were funded by the employers and employees together (Moran, 2000; Saltman et al., 2004).

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[29] For the development and characteristics of the NHS in Great Britain, see Talbott-Smith & Pollock, 2006; Wahl, 2011; Webster, 2002; Welshman, 2005. Cass (2006) provides a practical guide on the experience of patients through the NHS. For all Nordic countries, see Nordic Medico-Statistical Committee, 2013, and for Sweden in particular, see Jones, 2003.

The defining point in classifying healthcare systems, in the end, was the growing predominance of governments in the provision, regulation, and funding of health services. In line with the general characteristics of the system in each country, the share of the public and the private actors differed. The relationships among the three components of the health sector –the state, the market and the medical professionals- also took different forms. This period is characterized by the rise and later demise of professional dominance of the doctors, particularly in the US (Bury & Taylor, 2008; Coburn, 2006; Dent, 2006; Furedi, 2006). The modern hospitals emerged as complex organizations. The growing expenditures on health, on the other hand, led to the growth and increased interest of the private health sector.

A significant component of the evolution of healthcare services in the post-war era has been the changes in the modern hospitals (Freidson, 1963; Starr, 1982, Chapter 4). The increasing use of technology in medicine was a crucial factor in the changes in hospital organization. Starting from late 19th century, medical innovations "brought with them a need for specialized hospital facilities and their continuous adaptation to new scientific insights", with modern surgery being a crucial element in this trend (Tröhler & Prüll, 1997: 162). The ultimate development of the modern hospital "as the center of a technologically sophisticated health care system" (Bronzino et al., 1990: 1), however, occurred towards the middle of the 20th century. The increasing use of new technologies and increasing costs also led to administrative measures and increasing administrative control over the process of treatment, and over physicians. This was particularly apparent in the US, where the intensive use of new techniques, diagnostic tests and new drugs –among other reasons- required larger amount of administrative work, hence bureaucratization and increasing prevalence of formal rationality, leading to the corporatization of hospitals (Glaser, 1963: 39-50; Ritzer & Walczak, 1988; Starr, 1982).

As modern medicine and the healthcare systems took their developed shape, a series of changes occurred that required rethinking their organization. The primary point was the increasing expenditures and the need for cost-containment.[30]

A second point was related to the success of modern medicine in curing and eliminating infectious diseases and other causes of death as reflected in the rising life expectancy. The population started to get older as people started to live longer. The impact of this on healthcare systems was twofold: On the one hand, there was an epidemiological transition (Caselli et al., 2002; Gawande, 2014; Olshansky & Ault, 1986; Omran, 1971). That is to say, the diseases and health problems that needed treatment changed, with chronic diseases and other problems related to older age became prominent. There was also a further pressure for rising costs.

A third dimension of change was the remarkable development in medical technologies. The continuous innovations in biomedical technologies required new skills, more investment, more complex organizations, and they also meant increasing costs.[31]

Finally, the expectations and preferences of patients affected the evolution of healthcare systems. The increasing efficiency of modern medicine and surgery led patients to demand more health services and expect the newest technologies to be applied (Applbaum, 2010; Betz & O'Connell, 1983; Reiser, 2014). These expectations, in turn, created more pressures on systems and governments, also being a further cause of increases in expenditures.

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[30] The need for cost-containment was raised as early as 1970s, particularly in the US (Starr, 1982, 1992). The trend is continuing to occupy the agenda worldwide, as healthcare spending per capita continues to rise. In total terms, "total spending on health care now absorbs on average over 9% of GDP in the OECD", while the public spending on healthcare amounts to "15% of general government spending in 2007 (more than 6% of GDP), up from 12% in 1995." (OECD, 2010: 3)

[31] It is continuously emphasized that the rapid advances in medical technologies play a significant role in these huge amounts of expenditures. Technological change and innovation has become a challenge for healthcare systems, to the point that "health technology assessment" has become a major issue with specific agencies established for this task in some countries.

To conclude, the three-fold dynamics of "demographic changes, innovations in medical technology and citizens' increasing expectations have stimulated healthcare reforms at an accelerating rate, leaving no healthcare system untouched" (Reibling & Wendt, 2012: 490).

Starting with the late 1970s, criticisms and attempts to reform healthcare systems developed. While having reasons and dynamics specific to healthcare as summarized above, this trend was also in parallel to the retreat or retrenchment of the welfare state systems. The broader picture was characterized by economic and political changes at the macro level that are usually collected under the title of neoliberalism. Healthcare systems have been a major part of the neoliberal policies targeting the welfare states. This was because healthcare is a major component of these welfare states, in terms of both amount of expenditures and the volume of workforce employed.

A crucial and defining feature of neoliberalism has been the dissolution of the welfare in order to cut public spending, and promote private investment and competition. As summarized by Harvey (2007), "[t]he corporatization, commodification, and privatization of hitherto public assets have been signal features of the neoliberal project" (p. 36). All three processes mentioned by Harvey have been observed in the field of health. That is to say, healthcare has been increasingly corporatized, commodified, and privatized around the world in recent decades. By the 1990s the emphasis on a "health crisis" became dominant worldwide. The neoliberal mentality became strong in most countries, directing further marketization and commodification. The common characteristics of reform programs implemented in different countries led to debates on the convergence of all systems. In an overview of early reforms, Defever (1995) pointed out that the major objectives in these reform policies were sustaining both efficiency and equity. In order to obtain these goals, a series of measures were adopted: Limiting the share of costs of healthcare in national resources; "moving away from the public integrated model towards the public contract model"; the expansion of the private sector; the

introduction of co-payment; and paradoxically "serious increase of management costs as a result of cost-containment efforts" (pp. 2-4).

The widespread implementation of reform in various countries began to be seen as a "reform epidemic", amounting to "a single health reform program" (Ağartan, 2007: 37-38; Klein, 1993). The "global reform package", as outlined by Ağartan (2007), includes the preference for social insurance systems instead of the model of national health systems, the separation of funding and provision of healthcare services, the adoption of co-payment, and cost-containment measures aiming at strengthening primary care. A further dimension includes measures to limit costs by limiting professional autonomy by imposing performance criteria, utility reviews or defining standard procedures (pp. 47-49). Similarly, Kuhlmann and Annandale (2012) outlines a "global health policy toolbox", the major components of which are: Performance management of professionals; decentralization; gatekeeping; and partnerships between private and public actors.

As often emphasized in the broader context of neoliberalism, the health reform programs also contained a strong ideological dimension. In the UK, for instance, the new-right policies were guided by "an article of faith" that "only managers with private sector entrepreneurial values could make the NHS efficient" (Pollock, 2006: 38). The whole agenda is best summarized by Have (2000):

> The vocabulary of public debate has common denominators everywhere: cost-containment, budgeting, prioritization, waiting lists, choices in health care, practice-guidelines, quality of care, technology assessment. Scarcity of resources, demographic changes, scientific and technological innovations have created an increasing need to control the rapidly expanding health care domain. Market, management or combinations of both used to be regarded the preferred mechanisms of control and regulation." (p. 503)

As a result, what happened in the developed healthcare systems was a shift in the public-private balance. In addition to the aim of decreasing public spending, healthcare provision is also an attractive area for private investment. The neoliberal transformation of healthcare systems decreases the role and influence of the state in the provision of the healthcare services. The space emptied by the state is immediately occupied by the private sector. The opportunities for great amounts of

investment and profit in the health sector provide a strong incentive for private actors. In other words, healthcare systems are targeted by the neoliberal economy "to curb budgets and lower taxes, in order to free resources for the accumulation process", while it also offers itself as "a field for capital accumulation". Moreover, the profit opportunities offered by healthcare is not limited to the provision of healthcare, but it also includes the satellite industries such as the pharmaceuticals, biotechnology and genetics (Filc, 2005: 181).

The major dimension of these recent developments has been a change in how healthcare services are defined and perceived. The shift is from understanding of health as a right to its conception as a commodity. In a broader sense, this is parallel to the process of re-commodification generally observed in the weakening of welfare systems. The neoliberal trends in public policy are reflected as "the shift from 'welfarist' to 'neo-liberal' politics in health care" (Henderson &Petersen, 2004: 2).

The commodification of healthcare implies the provision of health services by the private sector, with the price of these services being determined by market mechanisms. Even when the services continue to be publicly-funded (for greater or smaller portions of the population), their provision is opened up "as a field of private capital accumulation" (Leys, 2010: 15). The shifting balance between the state and the market in the provision of healthcare is usually measured by the percentages in total health expenditure, and the ratios of public and private expenditures are commonly called as the public-private mix. The re-commodification of healthcare, however, has implications that go beyond the shift in the public-private mix: A shift in the social understanding of health and healthcare, a shift from a right to a commodity reflects a broader change at the ideological level (Leys, 2010; Maarse, 2006).

The critics of commodification in healthcare are usually concerned for increasing inequalities as a consequence of this process. A major argument in this line is that healthcare is not suitable for commodification due to its nature (Deppe, 2010). For

critics of this trend, it threatens the general level of health by causing greater inequalities in general and in access to health services.[32] A particularly significant concept in this context is the "social determinants of health". This concept emerges from the understanding that health is sensitive to the social environment, and implies that "public policy can play in shaping the social environment in ways conducive to better health". (Marmot & Wilkinson, 2003: 7). In the framework of social determinants of health, topics ranging from unemployment to exclusion, food or transport are counted as serious issues with direct effects on the health of individuals and populations. These issues, in turn, are best tackled through public policies that aim to eliminate exclusion, discrimination and inequalities (Deaton, 2003; Marmot, 2006; Marmot & Wilkinson, 2003; Wilkinson, 1996).

The increasing role of private sector is reflected in the increase in the private spending, but also in the increasing number and volume of private provision of healthcare. The increasing private provision leads to increase in the number of private hospitals and the number of beds in private hospitals. This privatization took different forms in different places. In the United States where private provision of healthcare had always played a greater role, this meant the increasing share of for-profit hospitals at the expense of non-profit and public hospitals (Schlesinger et al., 1987; Starr, 1982). In the NHS systems, such as the UK, the provision was mostly by public hospitals. Since a wholesale privatization was almost impossible in such countries, the neoliberal reforms first attempted to lead public institutions to adopt practices of private companies. In such systems, the first step was the introduction of managerialism in the administration of public healthcare services (Reed & Anthony, 1995). In countries where public provision was dominant, privatization usually developed gradually, often starting with limited services focused on outpatient care, such as primary care or ambulatory services (Maarse, 2006). The emergence of "day surgeries" in the UK, which is considered as a symptom of McDonaldization of

[32] Since late 1970s, Navarro (1976, 1993, 2004, 2007) has been a strong critique of the adverse effects of social inequalities on the health of individuals and populations.

medicine, constitutes a significant example of this. (Mottram, 2011; Verma et al., 2011; Waring & Bishop, 2015)

The aims of recent reforms toward marketization in healthcare are usually summarized as enabling cost reduction, quality improvement and increasing patient throughput. Although considered to be late in comparison to other sectors (Coye, 2001), organizational restructuring models developed for other sectors are increasingly applied in the healthcare sector. These models are applied in publics hospitals (e.g. in the UK or Australia) as well as in the private, for-profit hospitals in the United States or elsewhere. An example of these trends is the application of reengineering principles in hospitals (Bergman, 1994; Schweikhart & Smith-Daniels, 1996). A more recent trend is usually associated with lean thinking (D'Andreamatteo et al., 2015; Kim et al., 2006; Mazzocato et al., 2010; Waring & Bishop, 2010). In general, these can be regarded as the diffusion of post-Folivbraiordism in healthcare sector (Oliveira & Holland, 2007). These restructuring processes are also subjected to criticism. While some studies question their success in increasing costs (Braithwaite et al., 2006), other studies focus on their negative effects on the healthcare staff. Some of these effects are work intensification or deskilling, particularly for the nurses (Ackroyd & Bolton, 1999; Aiken et al., 2001; Lundy, 1996), while they also do not improve work-life balance for the employees (Oliveira & Holland, 2007).

The current rise in the commodification as described above is mostly about the transfer of provision from the public to private. This is best reflected in the growing number of private hospitals and other health facilities. The role and share of the private actors in the overall healthcare system, however, goes beyond that. Three additional industries or sectors should also be mentioned: the pharmaceuticals industry, private insurance companies, and the medical technology producers.

3.2 Patients: From *Sick Role* to *Consumer Patient*

The emergence and later evolution of healthcare systems as summarized in the previous section aimed at serving the patient, that is the individual or citizen who was sick. The role and influence of the patient in the functioning of the system also evolved throughout history. The doctor-patient encounter has always been at the center of medicine, even in the modern age when medicine was institutionalized and bureaucratized in hospitals. The patient has been subject of sociological studies starting in the 1930s. In the growth of medical sociology as a sub-discipline, the doctor-patient relationship constituted a major topic of research. Parsons' work on the concept of "sick role" was pioneering in this context.

In parallel to the evolution of medicine, medical industry and healthcare systems, the studies on the patient focused on various aspects. In the literature on professional dominance, for instance, the asymmetry in the doctor-patient relationship was highlighted. The debates on medicalization emphasized how even healthy individuals or situations that are not related to any illness had become of subjects of medical treatments. When marketization and commodification of healthcare developed as part of the neoliberal policies, one of the major aims was declared as providing the patients with more choice. Patients were now considered as consumers of healthcare who would behave as *homo economicus* and choose among a variety of products and services presented by the health industry. The effects of information technologies and the greater accessibility of medical knowledge allowed patients to become more informed about their medical situation, and also more demanding and questioning about the treatments advised by the doctors. This in turn led to debates about the demise of medical dominance, leading to the deprofessionalization of doctors and empowerment of patients.

This evolution of ideas about the patient and doctor-patient relationship indicates that the patients constitute a separate and important component in the social context that surrounds the surgeons. The changes in medicine, medical technologies as well as the organization of healthcare systems redefine the role, expectations and demands of the patients. These changes are then reflected in the doctor-patient relationship,

creating new conditions for the doctors. This section presents an account of evolution of the patient and the debates and concepts offered to explain this. The concepts of sick role, medicalization and consumer patients will be the main points to be discussed.

The "Sick Role": Patient first appears in social studies of medicine in the role of "sick" person. The "sick role" famously introduced by Parsons[33] defined the parameters of the debate in medical sociology for decades (Burnham, 2014; Parsons, 1951, 1975; Turner, 2006; Williams, 2005). The most important point in Parsons' conception of sickness is that he presents a sociological perspective to illness, in which illness is not only biologically but also socially defined. In his general functionalist conception of social system, sick role constitutes a deviance or dysfunctionality. When they are sick, individuals cannot carry out their normal functions, therefore causing a disruption in "the effective performance of social roles" (Parsons, 1951: 289). The duty of the medical professional is to restore them to their healthy and functioning status. In this context, medicine becomes "an institution of social control", since a certain kind of deviance is legitimated by medicine through the sick role (Conrad, 1992: 210).

Parsons (1951) defines four components of the sick role: The first is that the role provides an "exemption from normal social role responsibilities … and the physician often serves as a court of appeal as well as a direct legitimatizing agent". The second component is that "the sick person cannot be expected … to get well by an act of decision or will", hence the individual is not responsible for being sick. Thirdly, while being exempted from other social roles, the patient is expected to be eager to get well. The fourth component is the "obligation … to seek technically competent help … of a physician and to cooperate with him in the process of trying to get well" (p. 294).

[33] Although the first use of the concept was in a previous study by L. J. Henderson in 1935, the concept is associated with Parsons and his general theory of social system (Turner, 2006).

While guiding various studies in medical sociology, Parsons' conception of sick role has been subjected to various criticisms on a series of points. One of the earliest criticisms was that his conception did not reflect the diversity of "sick role expectations", which were influenced by differences in age, social class, culture as well as the nature of the illness (Kassebaum & Baumann, 1965). Starting with 1960s, his approach was seen as "overly politically conservative and supportive of medical authority" (Lupton, 1997: 95). Parsons view of the professional authority of the doctors and the patient's obligation to accept was increasingly criticized on the basis of the evidence of "the public's propensity to a consumerist relationship and physicians' willingness to accept it" (Haug & Lavin, 1981: 212). A consumerist attitude on the part of the patient also meant a more questioning attitude toward the doctor's authority. Parsons was again criticized for ignoring the possibility that medical professionals could be involved in exploitative actions and that they were "hungry not merely for status but also for both money and power" (Latham, 2002: 365). Furthermore, Illich (1976) mentions the inadequacy of the sick role to explain "a medical system that claims authority over people who are not yet ill, people who cannot reasonably expect to get well, and those for whom doctors have no more effective treatment than that which could be offered by their wives or their aunts" (p. 58). In the end, the concept has lost its relevancy and importance for medical sociology (Burnham, 2014).

Medicalization: The debate on professional dominance in medicine dominated medical sociology starting in the 1960s. The process of medicalization has been considered as the crucial mechanism that allowed the medical profession to obtain a great level of power and autonomy in its interaction with the state, market and the society. Medicalization, in its most basic sense, refers to a process whereby "nonmedical problems become defined and treated as medical problems, usually in terms of illness and disorders" (Conrad, 2007: 4). Beyond this neutral definition, however, the concept emerged to describe a more critical perspective towards the expansion of medical jurisdiction and the growing influence of medical industry. Irving K. Zola was a pioneering figure in this perspective. Zola (1972) argued that medicine had become "a major institution of social control", "the new repository of

truth" and that this was achieved "by 'medicalizing' much of daily living, by making medicine and the labels 'healthy' and 'ill' relevant to an ever increasing part of human existence" (p. 487).

This was also in line with Freidson's (1970b) argument about the growth of the jurisdiction of medicine beyond "its demonstrable capacity to 'cure'" (p. 251). This expansion of jurisdiction also produced a dominant position for the medical profession, as more problems being referred to their jurisdiction and their decisions or use of resources being immune to questioning. This expansion was at the expense of the patients, and the information and power asymmetry between them and the doctors meant that patients had little control or right over their own bodies. Without explicitly using the conception of medicalization, Freidson (1970a) points at the tendency for an exaggerated medicalization that could harm laypersons' civil liberties and moral dignity:

> A profession and a society which are so concerned with physical and functional well-being as to sacrifice civil liberty and moral integrity must inevitably press for a "scientific" environment similar to that provided laying hens on progressive chicken farms-hens who produce eggs industriously and have no disease or other cares. (p. 354)

Following Freidson and Zola, the most comprehensive use of the medicalization framework is provided by Illich (1976), who uses it to present a critique of modern medicine and its connection with capitalism, as reflected in the opening sentence of his book *Medical Nemesis*: "The medical establishment has become a major threat to health" (p. 3). The concept of *iatrogenesis*[34] or "the sick-making powers of diagnosis and therapy" constitutes a cornerstone of Illich's critique. Classifying *iatrogenesis* in the categories of clinical, social and cultural-symbolical, Illich argues that the efforts of the medical professionals and the institution of medicine towards progress and healing are in fact imbued with wrong therapies and applications, destroys the health of the society and deprives the individuals of their right over their own bodies. Illich

[34] *Iatrogenesis* is composed of *iatros* (healer) and *genesis* (origin) in ancient Greek, and means "brought forth by a healer" in ancient Greek. In current use, it refers to the adverse effects and complications that result from medical treatment, including negative effects of drugs, chance, medical error, negligence, unexamined instrument design, and so on.

completes his critique with a call for action by saying that "the recovery from society-wide *iatrogenic* disease is a political task, not a professional one" (p. 6).

In various studies, Conrad elaborated on the concept of medicalization. In 1975 he defined medicalization as the process of "defining behavior as a medical problem or illness and mandating or licensing the medical profession to provide some type of treatment for it" (p. 12). In his 1992 study, Conrad explained the three levels at which medicalization occurred: At the conceptual level, with the use of medical vocabulary to define of a problem; at the institutional level, when organizations "adopt a medical approach to treating a particular problem in which the organization specializes"; and at the interactional level, "when a physician defines a problem as medical" (p. 211). These levels also point out that processes of medicalization are not merely the result of the professional dominance of the doctors. In addition to the power and authority of the medical profession, there have been two more factors that shaped the medicalization processes: Social movements and inter-professional activities (2007: 9). In some cases, certain organized groups could call for medicalization, as in the case of alcoholism, while in other cases professions could compete among each other for authority over certain conditions, as in the medicalization of childbirth where obstetricians replaced the midwives. Following the profound changes in the organization of healthcare and medical knowledge, according to Conrad (2005), "the engines that drive medicalization" shifted to biotechnology, consumers and managed care (p. 5).

The concept of medicalization and the debates surrounding it have a parallel in the works of Foucault. Foucault does not put special emphasis on the concept, mentions it in a few places without making it a central concept, but his overall approach to medicine has a strong affinity with the social constructionist perspective underlying the medicalization thesis. In his account of medical politics in 18th century Europe, for instance, Michel Foucault (1984) writes about medicalization of the family, childhood or individuals. In this work, Foucault presents a precursor of the medicalization thesis:

> The problem of "children" (that is, of their number at birth and the relation of births to mortalities) is now joined by the problem of "childhood" (that is, of survival to adulthood, the physical and economic conditions for this survival, the necessary and sufficient amount of investment for the period of child development to become useful, in brief the organization of this "phase" perceived as being both specific and finalized). It is no longer just a matter of producing an optimum number of children, but one of the correct management of this age of life. (p. 279)

This changing approach to childhood leads to a focus on the family, whereby being healthy and consulting the medical profession for this becomes a responsibility:

> The family is assigned a linking role between general objectives regarding the good health of the social body and individuals' desire or need for care. This enables a "private" ethic of good health as the reciprocal duty of parents and children to be articulated onto a collective system of hygiene and scientific technique of cure made available to individual and family demand by a professional corps of doctors, qualified and, as it were, recommended by the state. (Foucault, 1984: 281)

The major similarity is that both Foucault and critiques of medicalization consider medicine as a dominant institution "that in Western societies has come to play an increasingly important role in everyday life, shaping the ways that we think about and live our bodies" (Lupton, 1997: 106). The major point of difference, according to Lupton (1997), is related to the conception of power. While critiques of medicalization believe that the negative consequences of the dominance of medicine could be reversed through de-medicalization and empowerment of the patients, Foucault's relational conception of power implies that this reversal would paradoxically result in "a greater 'medicalisation' of people's lives by encouraging them to acquire medical knowledge for themselves more actively" (p. 107).

The medicalization thesis started to be observed in various fields of life, with a growing body of empirical research documenting these. The earliest cases in this literature were considered with how different types of deviant behavior, such as alcoholism, drug addiction or deviant behaviors in children, were labelled as medical problems (Conrad, 1975). The agenda of medicalization continued to expand, with the cases of menopause, childbirth, pregnancy, infertility, ageing, obesity, attention deficit disorder (ADD), hyperactivity or post-traumatic stress disorder (PTSD) (Conrad, 2007; Gilman, 2011; Halfmann, 2012; Katz, 2011)

Conrad's attempt at redefining medicalization represents the trend toward the extension of the medicalization thesis. While the early medicalization thesis of 1960s

and 1970s focused on the role of the medical profession in the process, the recent trend has been to extend the criticism towards "other supposed beneficiaries such as the pharmaceutical industry, the capitalist class, the state, and patient advocacy organizations" (Furedi, 2006: 14). A multi-dimensional, multi-level approach to medicalization, it has been argued, allows us to appraise the multitude of actors involved in the process, as well as the social and cultural factors involved.

The medicalization debate and its evolution are significant in the debates on the role of the patients in the social transformation of medicine. With regard to the patients, a major criticism directed at both the sick role model and the early forms of medicalization thesis was that they assumed the patients as merely passive. The inclusion of "consumer demand" or "patient advocacy groups" among the drivers of medicalization processes, however, attributed a more active role to the patients (Conrad, 2005, 2007). What has changed is that as consumers of healthcare become more active, medicalization is no longer a uni-dimensional process as defined by earlier theorists, in which medicalization was directed by the medical profession or the medical industry. Patients, or consumers, have begun to participate more actively in this process, sometimes demanding for medicalization of a certain issue and sometimes resisting such a process offered by others (Ballard & Eston, 2005). As the docile patient has turned into a consumer, "in search of a diagnosis" (Furedi, 2006: 15), consumer demand has become a major driver of medicalization. This change of direction in the medicalization debate developed in parallel to the emergence of consumerism in health.

Consumerism/Expert Patient: Provoked predominantly by the process of marketization, but also by other factors, consumerism became a major feature of medicine. Medical consumerism refers to the changes in the attitudes of individuals who seek medical advice and help. Different from the earlier conception of the patient, medical consumer behaves similar to the consumers in other spheres of market economy. The increasing privatization of healthcare services, the growth of the medical industry and the developments in medical knowledge and technology presented the patients with a more differentiated and plural context. In this context,

patients are compelled to act like consumers, search for alternative products offered, compare them according to their prices, contents, choose among a variety of institutions with the aim of deciding the optimum alternative with regard to the cost and utility optimization.

This trend is further strengthened by other factors. One of these is the development and spread of information technologies, particularly the internet. A second dynamic is related to the growing distrust toward the effectiveness of modern medicine and the professional competency of the doctors (Annandale & Hunt, 1998). Thirdly, the emergence of patient organizations which evolved into a consumer movement in health was a determining factor (Hugman, 1994: 193).

While directly associated with the trends of marketization and commodification, consumerism in health is usually discussed in a wider context. On the one hand, it is related to the growth of private medical insurance and the privatization of public healthcare services, while it is also a reflection of the demand for greater choice. The patient advocacy groups that have become significant actors in the processes of medicalization can also be seen as a social movement aimed at the protection of consumer rights. This is why consumerism in health is also debated with reference to such concepts as empowerment, enablement, patient choice or patient-centeredness (Greenhalgh & Wessely, 2004).

The development and spread of ICTs has been crucial in the changing role of patients, since "the ready availability of medical information via the internet has begun to destabilize the professional boundaries of medical knowledge itself, and has generated new information for people (whether patients or not) from a much wider range of sources than in the past." (Brown & Webster, 2004: 1). This increasing role of patients is also reflected in the discourse on "patient-centered" medicine, which emphasizes the need "to focus medical attention on the individual patient's needs and concerns, rather than the doctor's" (Armstrong, 2011; Bardes, 2012; Bensing, 2000; Berwick, 2009). As mentioned by Conrad (2005), internet as a medium of information for lay persons has been crucial in the rise of consumerism, hence becoming "an important consumer vehicle" (p. 9). Currently, a plethora of online and

other sources produced by medical companies, professional organizations, reputed physicians or advocacy groups are presenting information directly intended for the use of individual consumers of healthcare. Consumers themselves are also engaged in sharing information and experience with others through online forums, bulletin boards and chat rooms (Shilling, 2002). The arguments that the abundance and greater accessibility of health-related information may lead to de-professionalization of doctors by empowering the patients, however, are not immune to criticism. Broom (2005), for instance, considers the de-professionalization thesis to be an exaggeration, suggesting that "notions of the Internet as a challenge or threat may in fact misrepresent the significant variation in how specialists are experiencing and responding to the health information revolution" (p. 335).

The approach to consumer demand as a major driver of medicalization, on the other, is in parallel to the view of consumerism as the empowerment of patients vis-à-vis "the authority of experts and the dominance of the medical system" (Sulik & Eich-Kromm, 2008: 4). A further similarity is with the emphasis on "consumer choice" in the attempts at privatization and marketization of healthcare. Proponents of further marketization and competition in the provision of healthcare services also claim that this would empower patients, because the patients are taking on the role of consumers with the freedom to choose among the products offered by multiple producers in the healthcare market. Conrad's (2005) observation is a manifestation of this parallelism:

> In our changing medical system, consumers of health care have become major players. As health care becomes more commodified and subject to market forces, medical care has become more like other products and services. We now are consumers in choosing health insurance plans, purchasing health care in the marketplace, and selecting institutions of care. Hospitals and health care institutions now compete for patients as consumers. (p. 8)
>
> In our current medical age, consumers have become increasingly vocal and active in their desire and demand for services. Individuals as consumers rather than patients help shape the scope, and sometimes the demand for, medical treatments for human problems. (p. 9)

The transformation of patients into consumers, however, cannot be regarded merely in the context of their increasing influence. This transformation is part of the marketization processes which lead to the commodification of healthcare (Henderson

& Petersen, 2004). The transformation of health from a right or public service to a commodity within an extensive healthcare sector dominated by market forces cannot be easily considered as a source of empowerment. Therefore consumerism has been criticized for being part of the commodification process, while supported by others as a mechanism of de-medicalization.

Consumerism can be seen as a reflection of marketization through which the responsibility for health loses its collective character and becomes a personal issue (Bella, 2010). The empowerment of patients, in critical perspectives, is in fact a means of transferring some of the responsibility and burden to the patients, while the discourses surrounding the empowerment agenda conceal this shift (Veinot, 2010). The debate around the concept of "expert patient" is a significant example in this context.[35] The concept was introduced by the Department of Health in the UK, in order to define a program aimed to increase the involvement of patients with chronic illnesses in the management of their treatments. The program was applauded for democratizing medicine, allowing patient participation, improving the success of treatments as well as enabling a more effective use of resources (Department of Health, 2001; Rogers, 2009; Shaw & Baker, 2004; Tattersall 2002). The critics on the other hand considered this as a further expansion of the medical gaze (Fox et al. 2005; Lupton, 1997), or as a part of the Third Way policies aimed primarily on cost saving (Greener, 2008).

Consumerism and commodification thought together, the empowerment of the patient may in fact reflect a different change in the context, where in fact both the patient and the doctor are more subordinated to the market forces. In the neoliberal context, the elevation of consumer choice as the primary principle is closely associated with the turning of public services into commodities: "The right of each to spend his or her own resources as he or she chooses is the organizing principle behind the privatization of government services" (Frank, 2004: 19). Turning into a

[35] "Expert patient is defined by the UK Department of Health (2001) as: "people who have the confidence, skills, information and knowledge to play a central role in the management of life with chronic diseases".

consumer, the patient can shop around, choosing among insurance companies, hospitals and doctors, but the commodified nature of the patient's encounter with the healthcare system determines the basic feature of that relationship. Some scholars situate the change from patient to consumer within the broader context of the emphasis on active citizenship, which is part of the shift from welfare state to neo-liberal policies. So an "ideal of rational consumer behavior" underlines this shift (Henderson & Petersen, 2004: 2-3). This shift, moreover, has been subjected to criticism both on normative and empirical grounds. There are various studies that demonstrate that patients do not always act as consumers, while other studies question whether marketization of healthcare really presents them with choice, influence or freedom (Bella, 2010; Frank, 2004; Henderson & Petersen, 2004; Hugman, 1994; Veinot, 2010). Waring and Bishop (2015) for instance, argue that the standardization of procedures which accompany the marketization of healthcare create an "illusion of patient choice", since "services become less personalised and less patient-centred, because they are evermore uniform and standardized" (p. 501).

With regard to the doctor-patient relationship, consumerism implies a change in the definition of professionalism, whereby the producer becomes "a producer who is responsive to the authority of the service user as a consumer" (Hugman, 1994: 192). Perhaps most importantly, this empowerment does not necessarily eradicate the information and power asymmetry between the patient and the healthcare providers, both doctors and the medical industry as a whole. The processes of medicalization continue to exist, with the doctors maintaining their role of gatekeeping even though the actors influential in the process have changed and proliferated (Conrad, 2005: 10).

3.3 Analyzing Surgical Craft in its Interaction with State, Market and Patient

Throughout the 20th century, to sum it up, healthcare evolved into a complex field, and an enormous industry in the advanced industrial countries, and the models developed there were diffused throughout the world. Usually named as *health care*

sector, the evolution of this has been analyzed and criticized in various frameworks, under headings that range from "medical dominance" (Freidson, 1970a; Øvretveit, 1985; Wollinsky, 1988) to "medical-industrial complex" (Relman 1980, 1983), "medicalization" (Conrad, 2007) or "commodification" (Henderson & Petersen, 2004a). The neoliberal trends of recent decades further strengthened this movement toward greater commodification, bureaucratization, formalization, and medicalization (Have, 2000; Navarro 2007; Riska & Novelskaite, 2011). With the ascendance of neoliberal policies in all areas of economics, market-oriented health care models gained predominance throughout the world. For the practitioners, the recent shift toward neoliberal health policies meant that they are now working under the dual logics of "the influence of the market and regulatory state organizations" (Riska & Novelskaite, 2011: 83). This was reflected in greater convergence between states in health policy and the diffusion of health care system reforms (Keyder et al., 2007; Rothgang et al., 2010).

As the topic of the current study is the work performed by the surgeons, the objective of this section is to consider the transformation in the social context discussed in the previous sections with regard to their impacts on surgery and surgeons. In the course of the evolution of healthcare systems doctors have been constrained first by the state in the context of welfare states, and later by the market with the growing commodification of health. In the contemporary world, therefore, surgeons –as professionals- are facing these two powers –the state and the market- which constrain their autonomy and shape their work environment. A partly separate development in recent decades, moreover, was the rise of patients as active actors in health. This was partly due to the spread of consumerism into health, as a consequence of commodification. It was also due to the rise of informed patients, mostly facilitated by new information technologies. These three dimensions imply that surgeons are faced with a constraining environment. Yet, surgeons also have sources of power and agency, which means they are not merely passive actors. All these points reflect a complex picture of dynamic interactions, in which the surgical craft interacts simultaneously with the state, market and the patient.

The relative strength as well as the primary roles of all these categories may vary from place to place or from time to time. The marketization dynamics, for instance, decrease the state's role as provider of healthcare, and emphasize its role as purchaser and regulator. Still, in many countries the state continues to be the employer for most of the surgeons. The market category includes a variety of actors. Some of these, such as pharmaceutical industry or medical device and technology providers have always been part of the healthcare system, while the private hospitals and clinics proliferated in many countries only when the states decided to transfer the provision of healthcare to the private sector. The patient, on the other hand, was regarded predominantly in a passive role in the frameworks of sick role and medical dominance, while patients are attributed a more active role in the framework of consumerism.

The relative position and strength of these categories, in turn, determine the social context of the surgeon, informing where and how the surgical craft will be performed, how it will be reimbursed or what demands will be placed on the surgeons in terms of skills. This, however, does not place surgeons in a purely subordinate role. After all, it is no coincide that medical professional was the prime case of professional dominance that has occupied medical sociology since 1950s. It is true that "doctors are deeply embedded in the health systems" in which state occupies a dominant role, making the power of medicine contingent on the state (Blank & Brau, 2007: 158). Moreover, medical profession is "vulnerable to control by whoever supplies the capital", particularly due to the high costs of medical technologies, which is even more significant in the case of surgeons (Starr, 1982: 16). Still, as Starr (1982) observes:

> They have been one of the few occupational groups in the twentieth century able to resist the current that has drawn self-employed artisans and craftsmen of all kinds into the orbit of industrial and bureaucratic organization. In fact, in the late nineteenth and early twentieth centuries, doctors were able to reverse the history that other occupations experienced. While many skilled crafts were losing monopoly power, the physicians were establishing theirs. In the same period as the crafts were being subordinated to large corporations, the medical profession was institutionalizing its autonomy. The doctors escaped becoming victims of capitalism and became small capitalists instead. (p. 25)

This observation is particularly valid for the surgeons, because the high demand for their services and therefore the promise of profit for investing in surgical services; the high level of skills required, that is the craft nature of their work; and the organized power of the surgeons are the assets that provide power and capacity for them to negotiate their position against the state, market and the patient.

Healthcare services are divided into three categories: Primary care, curative medicine and chronic care. Surgery is part of the curative medicine offered in hospitals and by specialized staff (Blank & Burau, 2007: 17). While the recent trends of reform usually emphasize primary care for the sake of cost efficiency, the hospitals as well as the doctors working there are attributed "a high status at the apex of the health care system" (Dent, 2003: 5).

To summarize, as a technology-intensive field, surgery is expensive and requires large investments in space, equipment and skilled labor force. This makes it dependent on the state or private investors who would provide these. These requirements also necessitate that surgery should be performed in hospitals or similarly complex organizations, which makes it difficult, if not impossible, for the surgeons to work independently ("solo practice" in the professional jargon). The surgeons, then, are required to be under hospital administrations, which are increasingly private and are increasingly under the administration of professional managers. Finally, given the death or life situations or the risk of patients being harmed, surgery has to be a highly regulated activity, which gives the state a significant role in the legislation and regulation of surgery.

The interaction of surgeons with the state and market is basically reflected in the impact of the changes in the public-private mix on the work environment of the surgeons. In a NHS-style publicly funded, managed and produced healthcare service, surgeons are public employees or they need to make contracts with the governments. In a market-oriented, highly privatized context, such as the United States, on the other hand, the state acts as a regulator and surgeons have to adapt to the market competition. In all cases, the surgeons will rely on their skills, professional organizations and public acceptance of their professionalism.

The issue of medicalization, as discussed in the previous section regarding the role of the patient in health, is one of the crucial areas where the relative influence of the doctors are considered to be decreasing in relation to the patient and market forces. While medicalization debates are mostly dominated by issues such as psychiatric disorders or drug usage, surgery is also involved in certain cases (Conrad, 2005). A prominent example is cosmetic surgery (Sullivan, 2001). Another significant example is obesity surgery. Once obesity has become medicalized, surgical interventions in cases of surgery also became thinkable, leading to significant increases in the number of gastric bypass operations (Conrad, 2005: 10). Also part of the medicalization of pregnancy and childbirth, the increase in the number of caesarean section operations almost globally constitutes another similar case. Gawande (2008) offers an interesting account for this increase, arguing that obstetricians were compelled to make a choice between craft or industry in defining their duty: The difficulty in teaching all the obstetricians the necessary set of "artisanal skills" was the reason why Cesarean section was preferred as a safer and better standardized technique, ensuring reliability in the face of the high volume of births that had to be delivered (p. 192).

The rise of consumerism in health as a corollary of the process of commodification does not necessarily mean the end of medicalization, as argued by Conrad (2005):

> The engines behind increasing medicalization are shifting from the medical profession, interprofessional or organizational contests, and social movements and interest groups to biotechnology, consumers, and managed care organizations. Doctors are still gatekeepers for medical treatment, but their role has become more subordinate in the expansion or contraction of medicalization. In short, the engines of medicalization have proliferated and are now driven more by commercial and market interests than by professional claims-makers. (p. 10)

How does technology enter into this complex web of interactions among surgeons, state, market and patients? As discussed earlier, as a technology-driven craft surgery has a specific relationship with technology. Surgery is performed in "technologically sophisticated hospitals dominated by a technologically sophisticated staff" (Bronzino et al., 1990: 1). As also emphasized earlier, moreover, the interaction of surgical craft with technology does not occur in a vacuum. Indeed, the social context described

above is the realm within which this interaction occurs. Introducing technology into the social context of the surgeon produces a more complex web of relations.

To begin with, medical technologies played a significant role in the transformation of healthcare systems on the basis of two factors. First, the increasing use of technology in hospitals was one of the major factors responsible for driving the expenditures to higher levels. Surgical technologies, together with imaging techniques, were particularly important in this aspect. Secondly, these technologies also promised profitable areas of investments for those searching for new venues of investment. At a time when real incomes, health expenditures and people's demand for new technologies were increasing, the conditions were suitable for the healthcare industry to become a giant industry.

The studies on hip replacement (Anderson et al., 2007) and fracture treatment (Schlich, 2002) provide historical examples to study the patterns observed in the introduction of new technologies in surgery, and how they interact with the states, market forces and the patients. In the case of hip replacement, what started in the 1970s as a surgical breakthrough developed by surgeons and engineers developed into a standard procedure was in time surrounded by the regulations of the state, a medical device market, and patient demand. In the end, it developed into a big market on its own: "By the 1970s hip replacement was a paradigm of surgical success, by the 1980s it was big business in the US, and by the 1990s the business was globalized" (Anderson et al., 2007: 4). In the story of *osteosynthesis*, a type of bone fracture treatment, a new method is introduced and propagated by a small group of surgeons. The group achieves to turn the new technique into a standard procedure although faced with the opposition of other surgeons, with the organization turning into a multinational enterprise in two decades. Schlich's (2002) account of this development is important for demonstrating that the acceptance of the new technique was not only through a scientific, professional debate among surgeons, and technological change was not natural or inevitable. The success depended on the building of a complex network of "surgeons, scientists, manufacturers, and patients: the AO technique did not exist independently of those who used it, and the AO

philosophy was only true as long as there were surgeons, scientists and patients acting in accordance with it" (p. 242).

Among the most significant consequences of the proliferation of medical and surgical innovation and treatment were the increasing demand, and soaring costs. People are fascinated with the successes of surgery. This leads to rapid increase in the number of operations, number of surgeons, medical schools and the costs. In order to meet this demand and cover the costs, both business and governments became involved in health care. Particularly in the post-WWII period, medicine evolved into a primary branch of public services as well as one of the leading industries, since "health has become a major component of the economy with respect to employment, production and emergent innovation" (Webster, 2007: 43). The increased demand for technology made medical technologies a profitable area for capital investment. Given the need for high levels of "capital expenditure for equipment and facilities that fewer physicians can manage on their own", potentials for doctors to continue their "traditional practice without much external intrusion" have been increasingly narrowed. The prospects for huge profits, combined with "the assortment of new coalitions competing for such profits" resulted in "many new types of alliances" (Mechanic, 1991: 489).

States were required to cover costs, invest in medical technologies, and employ health care staff. Gradually "government has become a major source of funds for health care everywhere", also increasing "its involvement in hospital medicine" (Tröhler & Prüll, 1997: 165). In addition to public funding, private insurance companies emerged and became important actors in health sector. Private insurance companies and governments tried to control costs, for this they had to control the doctors, technology utilization and hospital administration. This meant decreasing autonomy for the doctors both in deciding which treatment to choose and in the management of hospitals.[36]

[36] Among the physicians, the need for checking for the patient's insurance coverage before deciding on the treatment is called as "wallet biopsy".

New medical technologies usually lead to higher expenditures, as they render previously incurable disease curable, as in the case of hemodialysis which allowed patients to continue their lives but at a high price. In some cases new technologies, such as the CT scans and MRIs, new technologies replace the older, more expensive ones, but the overall expenditure increases due to their frequent use (Garber & Goldman, 2004: 107). New surgical techniques and technologies played a significant part in the rise of costs, as clearly summarized by Schlager and Lauer (2000):

> Progress in surgery made possible by advances in technology, such as the heart-lung machine, diagnostic screening devices such as magnetic resonance imaging (MRI), critical care units, and intensive care units are among the factors that increase the costs of modern medicine. Organ transplant operations and the development of artificial organs have saved lives, but are among the most expensive interventions of modern medicine. (p. 281)

Surgery is also mentioned frequently when discussing the growth of medical technology industries. For example:

> Biotechnology companies had estimated revenues of $51 billion in 2005, but were expected eventually to overtake pharmaceuticals in value; and there were in addition fast-expanding medical technology industries at the centre of advances in drug delivery, imaging and computerised surgery, with annual sales of the order of $200 billion. (Leys, 2010: 12)

What is interesting in all these trends, for the aims of this study, is that the evolution of medical technologies has been a critical factor, by creating greater demand on the part of patients and doctors, and greater profitability for business, as well as greater costs for insurers and government. Surgical technologies played a significant part in all this, since surgical procedures and diagnostics are among the most expensive procedures. For this reason, cost-containment or cost-effectiveness is a major issue in the debates on new surgical technologies.

One current example of this is the increasing use of robotic technology. As described earlier, robotic surgery is an advanced form of laparoscopic surgery, in which the surgeon operates away from the patient's body and performs by controlling a console. Robotic surgery requires a more complex setting, increasing the time necessary for setting it up, together with a much higher cost (Cormier, 2011; Monod, 2011). It presents all the advantages offered by the laparoscopic operations, with some improvement in technical sense and this improvement is better observed as the

difficulties of the procedures increase (Cormier, 2011: e20). What is the main topic of concern, in the current healthcare settings, is whether it is cost-effective (Barbash & Glied, 2010). Cormier (2011) and Monod (2011), in summarizing their own experience with this technology, point at a series of points: Robotics surgery has high amortization and maintenance costs, provides shorter durations of hospitalization; could be profitable by increasing the reputation of the hospital and attracting more patients for other services. In the end, the decision for hospitals to acquire these devices depend on considerations of cost-effectiveness, which also depends on the financial and administrative conditions of the country, but it is also dependent on the demand of patients and their willingness to pay extra fees since they are usually not covered by existing insurance institutions. In this context, the quick diffusion of robotic surgery (Barbash & Glied, 2010: 701) presents a puzzle in the face of the lack of evidence for cost-effectiveness, and the extra financial burden on the patients.

As a consequence, the social context in which the surgical craft exists and interacts with technology can be summarized in an analytical framework with three social categories: State, market and patient. Each of these categories is influential in shaping the way new technologies are employed in surgery. Together, therefore, they shape the way surgical craft interacts with technology. They create constraints (as in the case of the state or private insurance companies), they demand or refuse new technologies (the patients) or they promote new technologies or technology-intensive surgical practices (biomedical technology firms or private hospitals). In total, these create a complex setting with countervailing powers that the surgical craft must adapt to or cope with. Given the complexity and multitude of forces in different directions, the surgeons should also be expected to act in different ways, choosing different strategies for themselves. A variety of actions or reactions are observed among medical professions in response to these transformations.

This framework aims to understand how the transformation of the social organization of medicine affected the surgical craft. This aim is in parallel to the debates regarding the broader structural changes in the organization of work and the position of professionals in the face of these changes. These debates have revolved around the

two poles of regarding professionals either as "victims", increasingly controlled by the processes of standardization and managerialism or as "strategic operators" able to respond in a variety of ways (Gleeson & Knights, 2006). While the arguments regarding the proletarianization (Chernomas, 1986; McKinlay & Arches, 1985; McKinlay & Stoeckle, 1988), de-professionalization (Haug, 1976, 1988; Light & Levine, 1988) or corporatization (Starr, 1982) of the medical profession considered this process as the loss of professional power and autonomy, Freidson (1985) in response argued for a more resistant and influential role for the medical professional. These approaches have all been considered as limited, failing to recognize the greater variability that is observed in the actual processes of change within hospitals. Based on a dual framework of hegemony and resistance, more recent studies found a variety of strategies and modes of interaction between managerialism and professionalism. These studies employ a "more contextualized, qualitative and process-oriented approach" and define a continuum of responses including co-optation, negotiation, strategic adaptation (Numerato et al., 2012). In a similar vein, Waring and Bishop (2013) argue for an approach that goes beyond the hegemony/resistance duality, and focus on "how doctors' reactions to these new structures vary and how these variations reflect different sources of power" (p. 154).

The study by Waring and Bishop (2013) finds that the more experienced specialist doctors, whose expertise in their sub-specialty are not easily replaceable, and is financially valuable, are in a more advantageous position to negotiate with the market forces. So the opportunities for the doctors to resist, negotiate or become engaged with managerialism vary according to the professional sources of power they could rely on. As a result, their ability to reshape the structural conditions depends on "their structured positions, resources and opportunities", while the trends of marketization and commodification "value certain professional resources more than others, in relation to their contribution to capital accumulation" (p. 154).

In the light of the arguments summarized above, surgeons could be expected to differ from other doctors in their interaction with the changes in the social context. The characteristics of the surgical work defined in the previous chapters provide them

with certain strategic resources they could rely on in this interaction. Surgeons are, by definition, specialized doctors, and the trend toward greater specialization further enhances the value of their knowledge and skills. Their skills are scarce and hard to replace, and this scarcity is especially due to the craft nature of their work. The extensive use of technology, moreover, makes surgical operations an important means of capital accumulation for the health industry, further enhancing the role of surgeons by making their work financially valuable.

3.4 Surgical Craft in Turkey

3.4.1 History of Medicine and Surgery in Turkey

The history of Turkish medicine is usually started with the era of the Seljuk Empire and 11-13th centuries. This era was characterized with some significant scientific achievements and medicine had played a special role. There were also certain services regarding health, although these were mostly confined to those who could afford to pay. Hospitals were established, under the names of *Darüşşifa* (house of healing), *Darüssıhha* (house of health), or *Bimaristan* (hospital in Persian). Treatments were also offered to the sick at the caravansaries and almshouses. The hospitals were usually built along trade routes by the royal family, and thanks to the large financial resources they played important roles in solving the health problems of the people independent of the state. They are considered, therefore, as charity organizations. The medicines were also produced in these places and offered to the patients for free. These were also places of training for physicians and surgeons. The personnel of these hospitals consisted of a chief physician, physicians, surgeons, the *kehhal* (ophthalmologists) and pharmacists, and services were open to all the subjects of the empire. In times of war, there were also mobile field hospitals (Bulut, 2007; Ceylan, 2012: 28-40; Kemaloğlu, 2014; Sarban, 2015).

Following the Seljuk era, systematic health services could be found in the Ottoman Empire. In this period, the foundation hospitals that were remnants of the Seljuks were maintained while new ones were also built. Same titles were used for these

facilities until 19th century, when the word *hastahane* (the modern word for hospital) started to be used. In contrast to their independent status in the Seljuk era, "Ottoman hospitals were built as part of campuses (*külliye*) that included a variety of units such as the mosque, *medrese*, *sıbyan mektebi*, almshouse, *hamam* and caravansary" (Bayat, 2010: 298).

These institutions were similarly engaged in training physicians as well as serving healthcare. The first medical institution that would function as a medical school was the *Süleymaniye külliyesi*, which was established during the reign of the Sultan Suleiman in 1556. The *külliye* contained 4 *medreses*, a medical school and a pharmacy. One way of becoming a physician was to attend to private classes at the house of a master physician, obtain medical knowledge there and start practicing at the hospitals when permitted by the master. These master physicians also gave lectures in private shops. The spread of these shops, however, had led to an increase in uneducated physicians, resulting in a strict control system governed by chief-physicians (*hekimbaşı*) (Bayat, 2010: 299, 315; Bulut, 2007; Göktaş, 2014: 101; Sarban, 2015).

Towards the end of the 15th century some important studies and developments could be observed in Ottoman medicine, especially in the field of surgery, but still it was not much different than the craft performed by the barber-surgeons in medieval Europe. The barber-surgeons in Europe lacked theoretical medical knowledge, in contrast to the physicians, and their treatments were based mostly on practical knowledge. In a similar vein, the surgeons and *kehhal* in this early period of the Ottoman era were illiterate as formal education was still absent. A general description of these surgeons and their employment is provided by Bayat (2010):

> (…) [The surgeons] developed their skills in association with the guilds that were connected to the Ahi organizations, in a master-apprentice relationship or by working with the barbers. The barber could perform some simple surgical interventions such as tooth extraction, bloodletting, cupping, and healing wounds. Some used to learn these arts in their families (…) Among the surgeons and *kehhal* working at their houses or shops there were also Jews and Christians who had come from abroad. When required these surgeons and *kehhal* working independent could be employed at the palace, army or official institutions. At the time of Evliya Çelebi, there were 700 surgeons working in 400 shops and 80 *kehhal* in 40 shops. (p. 299-300)

Before 19th century, there was no official institution that offered surgical education and training in the Ottoman Empire. The only exception was the *Enderun*, where skillful youth could be gathered to work beside the already working surgeons so that they could become surgeons in practice. These surgeons (and *kehhal*) would then be employed in the janissary organization to work as apprentices under the supervision of the chief surgeons (*cerrahbaşı*) (Bayat, 2010: 299). The need for surgeons would increase particularly in war time. These surgeons "could fix fractures, drain abscesses and heal wounds. In healing the wounds they would usually use searing or ointments" (Sarban, 2015: 16). The surgical craft was, therefore, characterized with the master-apprentice relationship away from modern medical education (Ceylan, 2012: 45; Ülman, 2007: 175)

In parallel to the tendency for modernization in almost all fields that dominated the 19th century Ottoman Empire, medical education was also institutionalized. Modernization of medicine had gained urgency due to the needs of the military, the spread of cholera epidemics in the Near East and the uncontrolled increase in the number of foreign physicians (Berkes, 2003: 185). Modern medical education started with the opening of the Military Medical School (*Tıphâne-i Amire*) in Istanbul in 1827 under the reign of Sultan Mahmut II.[37] This was followed immediately with the opening of a surgical school, the *Cerrahhane*. In 1838 the two schools were united under the name of *Mektebi Tıbbiye-i Şahane*, signifying the real beginning of the medical school. The teaching staff was composed of both foreign and native professors, with the physicians educated at the *Süleymaniye Tıp Medresesi* also taking part. For a long time, the Military Medical School functioned as a hospital, especially during wartime, alongside its educational function, under the direction of Drs. Rieder and Dayke from Germany (Alemdaroğlu, 1999; Berkes, 2003: 185; Bayat, 2010: 301; Sayılı, 1937; Ülman, 2007). In the second half of the 19th century, academic activities had also started to develop in the school, as summarized by Ülman (2007):

[37] For the interesting opening speech by the Sultan Mahmut II, see Berkes (2003: 186)

> Among the novelties of the *Tıbbiye* was the publication of two scientific medical journals in its own printing house, one in Turkish (*Vakayi-i Tıbbiye*) and the other in French (*Gazette Médicale de Constantinople*). The journals contained articles on medical and surgical procedures performed in Istanbul and various parts of the Empire, together with case presentations from the clinics of the school, the activity report of the school and translations from foreign medical journals. A remarkable feature of the journal was the abundancy of articles regarding the autopsy and dissection applications supported by the findings of examinations. The post-mortem examinations in the *Gazette Médicale de Constantinople* were among the first of its kind in our country. Moreover, the autopsy report in the supplementary volume of the journal is among the pioneers of autopsy protocol in the history of modern medicine in our country. (pp. 177-178)

The beginning of the modern medical education in 19the century constitutes a turning point in the history of medicine and surgery in Turkey. As the leader of modern surgery in Turkey, Dr. Cemil Topuzlu (1868-1958) defines three episodes in the evolution of surgical education in Turkey: The first episode starts with the opening of the Military Medical School in 1827; the second phase concern the training of Turkish surgeons; and the final phase starts with the emergence of antisepsis and asepsis, or the birth of modern surgery. In initial years, education was conducted by European surgeons, and the language of instruction was French until 1864. For long years, surgery was dominated by foreigners as well as Rum and Levantine subjects of the Empire. In the second episode, noticing that no Turkish surgeon had been trained in the 40 years since the opening of the school, three young doctors were selected through a competition in the school in 1875 and sent to Vienna and Paris for surgical training.[38] Upon their return, foreign surgeons continued to be active for 10-15 years, since "they could not find the opportunity to compete with the foreign and native surgeons who had been performing surgery for years and had somehow gained the trust of the people". The third phase starts around 1890s, as the newly trained surgeons who had returned to the country after their training in European countries started performing surgery in accordance with the principles of antisepsis and asepsis. (Bumin, 2010: 11-13).

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[38] Berkes (2003) explains the relative absence of Turkish students as a result of the lack of students with a sufficient secondary education to understand the medical courses. Besides, families were not aware of the importance of medical education, and "as we would see later in the opening of the *Harbiye*, there was not a class that would be attracted to these institutions. Therefore, very few students could be recruited from Muslim families" (p. 187).

In the early 1900s, the surgical practices and environment continued to be based on very limited knowledge and experience, though the situation was not much different in Europe and America as the advances in surgery were still lacking. This is how Bumin (2010) described the period:

> Wounds were wiped with sponges, covered with wool and gummed cotton. The sutured wounds would not hold and become infected. They could not dare to open the abdomen. There was no operating room. Cemil Paşa's master Aristidi Efendi performed operations on the tummy stone in a *hamam*. 80 per cent of the patients who were operated eventually died of either infection or pneumonia. (p. 17)

This pre-modern environment of surgery was also described by Dr. Topuzlu (2010), who had performed surgery himself in that period:

> Antisepsis had not yet set foot in our hospital. Each morning at nine o'clock the wounds of the patient were checked. In that instance, one of the caretakers would hold a dirty tray containing iodoform powder, iodoform pomade, mohair, sponge, gummed cotton and a few instruments with wooden handles, while another would carry the washbowl and the pitcher right after our professor. Professor would untie bandage and open the wound of one of the patients, without washing his hands. Since hydrophilic cotton was unknown, he would put some iodoform pomade and some mohair and gummed cotton after cleaning it with the sponge, and cover it with a dirty bandage. Finally, he would wash his hands with the washbowl and the pitcher that the caretaker carried, since there was no running water in the ward. (p. 13)

While the Royal Civil Academy of Medicine (*Mekteb-i Tıbbiye-i Mülkiye-i Şahane*) carried significant functions, there were also many "charlatans" –such as barbers, bloodletters, and so on. The academy task was, therefore, to liberate medicine from these charlatans while taking care of the poor. Regulations also started to be formulated, regarding the medical and paramedical occupations. Midwifery, for instance, was an occupation being conducted without any institutional association. In 1846, work permits began to be given to midwives after successful completion of exams. Another significant development at the school was the effort toward replacing French with Turkish as the language of instruction, and this is accomplished in 1870. With the organization of *Memleket Tabipliği* in 1871, provision of health services had become an obligation of the state, and physicians started to be employed for the purposes of general public health. In this system, civilian physicians were encouraged to provide full-time public service to the people through high levels of wages. In their remaining time, physicians would deal with the needs of the poor people.

A further institutional development regarding medical education was the unification of military and civilian medical schools "as the Faculty of Medicine within the newly established Istanbul House of Sciences (*İstanbul Darülfünun*) in 1912 after the Young Turk revolution of 1908" (Salgırlı, 2011: 288-289). This school would later be part of the İstanbul University, and divided into two separate medical schools in 1967. The evolution of the health services in the Republican era started with the establishment of a Ministry of Health as part of the new government in Ankara in 1920. This was followed with the formulation of various regulations and legislation of basic laws related to health (Berkes, 2003; Bulut, 2007: 111-113; Salgırlı, 2011; Ülman, 2007).

After the establishment of Republican Turkey, first attempts at national health planning also started. The Republic increased the geographic coverage of the *hükümet tabipliği* system that it inherited from the empire, appointing a doctor as a governmental employee to most of the towns (Aydın, 2002: 187-88). The foundation of the dispensaries in 1924 was a significant development, where people were served free medical examination, treatment and drugs. The initial number of dispensaries decided to be established were 150. With regard to the hospitals, the earlier practice continued and hospitals remained under the control local governments and municipalities until 1950s. The Ministry of Health also built and operated hospitals, which were pioneering institutions and hence called *Numune* (exemplary). In the context of health planning, doctors, nurses and midwives would be trained all over the country and then employed at these hospitals. In the 1923-1938 period, the Atatürk era, a series of laws and regulations were enforced. The numbers of 344 doctors, 60 pharmacists, 560 health clerks and 136 midwives in 1923 were tripled by 1935. Perhaps the most single development of this era was the passing of Law No. 1593 on general health and hygiene (*Umumi Hıfzıssıhha Kanunu*), which is still in force (Aydın, 2002; Bulut, 2007: 113). 1930s also witnessed important developments in medical education: The first was the immigration of several professors who fled from the Nazi rule in Germany and Austria; and Dr. Nissen and Professor Melchior, among them, became the directors of surgical clinics in Istanbul and Ankara until 1954. (Alemdaroğlu, 1999: 1017). The second development was the establishment of

Istanbul University to replace the abolished *Darülfünun* in 1933 with a special legislation, whereby some of the faculty at the Medical School were purged and replaced by younger doctors with experience in Europe (Bulut, 2007: 113).

Another turning point, with regard to the medical profession, was the constitution of the Turkish Medical Association (*Türk Tabipleri Birliği-TTB*) by the Law No. 6023 in 1953. This new body would be a representative institution for the physicians, ensuring the proper conduct of the profession as well as protecting the rights and interest of its member. While its constitution showed a corporatist characteristic, the association would gain a more independent standing in its relations with the state, as part of the political development of Turkey in the 1960s and 1970s (Bilaloğlu, 2012; Bora, 2002). Duties assigned to the Board are all follows (Bilaloglu, 2012: 27):

> - Providing opinions on such marten as educational curricula and training in health; identification of professional areas and branches and planning for the employment of health workforce,
>
> - Establishing ethical codes and principles in health profession,
>
> - Deciding on procedures to be followed in such issues as testing professional competencies of health workers, training of health workers in ethics and patient rights, all well as content and duration of trainings,
>
> - Deciding on bans to practicing the profession on grounds of health problems, and
>
> - Deciding on temporary or permanent exclusion from the profession.

Alongside the history of medicine and healthcare in Turkey, modern surgery also has a relatively long history. While the history of surgery in Turkey is not well documented, the limited writings, especially by the surgeons, demonstrate that the advances in techniques and Technologies have been closely followed. Cemil Topuzlu (*Cemil Paşa*) emerges as a pioneering figure, starting to operate in 1880 and active for the coming decades. According to Aybar (2010), the basic principles of antisepsis, asepsis, anesthesia and physiology had been established in Turkish surgery already in the time of *Cemil Paşa*, maintaining a parallel with the Western medicine. These were spread throughout the country with the next generation of surgeons in the years between 1912 and 1925. From the 1950s on, significant achievements are being observed in the practice of surgery in Turkey, in parallel to the technological breakthroughs in the international arena.

Two significant branches –cardiac surgery and neurosurgery- constitute examples in this respect. In the case of cardiac surgery, the application of modern techniques started with the closed mitral commissurotomy operations performed in early 1950s by doctors Nihat Dorken and Fahri Arel in Istanbul and by Orhan Mumin and Hilmi Akın in Ankara; while the first open heart surgery was conducted in December 1960 by Dr. Mehmet Tekdoğan. These were followed by heart operations on children, the first heart transplant in 1967 and the first coronary bypass operation in 1974, all performed by Dr. Aydın Aytaç. First heart transplant with a long-term success was accomplished in 1989 in Istanbul, and the first video-assisted thoracic surgery was performed in 1995 in Izmir (Aytaç, 1991; Örer & Oto, 1999).

By 1990s, heart surgery was considered as perfectly developed on the same level with the developed Western countries. Starting in the 1950s, the developments in surgical techniques and technologies have been closely followed in Turkey, as exemplified in the cases of open heart surgeries or heart transplant operations (Aytaç, 1991).

The history of neurosurgery in Turkey starts with the 1890-1909 period when general surgeons attempted at neurosurgical interventions. In the following periods, it is first characterized by a transition from neurology to neurosurgery, and later by the training of established surgeons in this field. After the 1950s, finally, a separate clinic is established firs in Cerrahpaşa Medical School in 1972 (Er & Naderi, 2011; Erkoç et al., 2010; Kırbaş, 2013).

As mentioned in the previous sections regarding the history of surgery, the introduction of laparoscopic techniques has been a crucial turning stone. The introduction of these techniques in Turkey also demonstrates the developed status of surgery in Turkey. The first application of this technique was the laparoscopic cholecystectomy operation performed by a team in October 1990 at the SSK Okmeydanı Hospital (Cengiz et al., 2013: 3).

As will be discussed in the next section in the context of marketization of health, surgery in contemporary Turkey is a well-established field of medical practice, with thousands of specialist, and millions of operations of all kinds conducted annually.

3.4.2 Surgery and Transformation of Healthcare in Turkey

The evolution of the health care system during the Republican era can be considered in four periods: The early republican period until 1960; the 1960-1980 period when the socialization program was dominant; the post-1980 era when the privatization of healthcare became the major dynamic, including the 1990s when the first comprehensive attempt at healthcare reform took place; and finally the period since 2003 when the HTP has been carried out.[39]

The first period starts in 1920 when the Ministry of Health (MoH) was first established as part of the new National Assembly gathered in Ankara. In the wake of the declaration of the Republic in 1923, the ministry of health emerged as a significant body under the ministry of Dr. Refik Saydam. During Saydam's term (1923-1937), a series of laws were passed, and institutions founded, some of which are still active, particularly the Law on Public Hygiene and the Institute for Public Hygiene (*Umumi Hıfzısıhha Kanunu*). In the system that developed in this era, curative medicine was left to local administrations, while preventive medicine was the responsibility of the central administration. The focus was on building an infrastructure and increasing the number of professionals to support a nation-wide health service.

These early initiatives were continued in the 1945-60 period, as a series of new legislation and institution were introduced. Two documents were particularly important in this respect –the first Ten-Year National Health Plan and the National Health Program. Although these documents "could not be turned into a legal

[39] This periodization follows, in general, the periodization offered by the Ministry of Health (2003: 8-11), together with the accounts offered by Ağartan (2012: 460-463), Bulut (2007), Kartal (2009), Ünlütürk Ulutaş (2011: 149-178).

document or implemented in whole, majority of their ideas deeply influenced the health structuring of [the] country" (Akdağ, 2011: 20). The significant developments in this period included the extension of health care services in rural areas, cooperation with the UNICEF and WHO, founding of new Schools of Medicine, increase in the number of health institutions and beds in hospitals together with significant improvement in health indicators, foundation of the Social Security Institution (*Sosyal Sigortalar Kurumu*) and expansion of its coverage to workers and active and retired public officers. In addition to the efforts to further extent the health houses (*sağlık ocağı*) throughout the country, regional exemplary hospitals (*Numune Hastaneleri*) were established in different regions as well hospitals specialized in children's health, tuberculosis or mental health (MoH, 2003).

Another important aspect was the establishment of the Turkish Medical Association (*Türk Tabipler Birliği*, *TTB*) as the central organization of the medical profession in 1953. According to the Law No. 6023 that established the TTB:

> The managing and auditing bodies of the Association are elected by its members (medical doctors) under the supervision of a judge. The mission of the Association is to ensure that the profession of medicine is practised so as to promote the benefit of the public in general as well as individuals, and to protect the rights of physicians. (Bilaloğlu, 2012: 27)

The "Socialization Program" that was initiated in 1961 was defining characteristic of the 1960-1980 period in the social organization of medicine in Turkey. A broader conception of social rights was introduced into the legal and political system with the 1961 constitution, in which health was defined as a basic right that the state was obliged to provide its citizens (Kol, 2015). The reflection of this in the health system was the acceptance of a new law regarding the "socialization of health services". In this era Turkey moved closer to a welfare state model in line with the already established European models.

The Socialization of Health Law (*Sağlığın Sosyalleştirilmesi Yasası*) of 1961 envisaged an integrated system composed of health houses and town and city hospitals, a referral system, and unified provision of healthcare services free for all citizens. As the policies of successive governments contradicted with the goals set by

the law, the insufficient allocation of budgetary sources to health and the failure to pass required legislations resulted in the incomplete implementation of the system (Kol, 2015: 140-142; Şahpaz & Bilaloğlu, 2011; Ünlütürk Ulutaş, 2011: 158-162). Two failed legislation are particularly important, with regard to the more recent developments: A draft for General Health Insurance (*Genel Sağlık Sigortası*) was first developed in 1967, but failed to be enforced in successive attempts in 1967-1974 period; the full-time work arrangement for doctor employed in public services that would inhibit them from private practice was introduced in 1978, but this law was abolished after the 1980 military coup (Kol, 2015: 142).

In the post-1980 period, which could be considered as a third period, the agenda in healthcare was dominated by a trend toward privatization. In parallel to the neoliberal trends throughout the world, the topics of privatization, deregulation and integration with the world economy became prominent. This drive toward liberalization had important repercussions for social security and public health care services. From 1980 until 2003, when the final reform program was declared, there have been various governments, but the general framework for the intentions and policies regarding the health care system remained the same.

With the forceful redesign of the political regime and economic orientation in the wake of the 1980 military coup, the not-yet-fully-established welfare state was further ignored, and privatization of social services was preferred, along with the retreat of the state from production of public goods and services, financial opening and other steps toward privatization, marketization, and deregulation.

This new orientation was reflected immediately in both the Constitution and the health care policies of the military junta and the successive civilian governments. Administration after administration, the general framework of health policy, at least the direction and aspirations, stayed the same with a recurring set of components – such as promoting private sector investment in health, opening the health sector to foreign investment, flexible pricing, performance-based payment in public health institutions, primary care through family medicine, the practice of revolving funds in

health facilities affiliated with the MoH, and universal health insurance (Kartal, 2009; Soyer, 2007: 19–34).

A defining feature of this period was also the involvement of the World Bank (WB) in these efforts for transformation. The liberalization steps attracted significant support from the WB in the 1980s, and particularly starting with 1990s transformations of health sector has become a part of the Country Assistance Strategies (CAS) prepared by the Bank. Another defining feature of the period, on the other hand, was the recurring pattern of failure of successive governments in accomplishing these tasks. The essential components of the reform were already defined as early as in 1992, in the two successive National Health Conventions. The WB was also involved in this process with three separate projects (approved in 1989, 1994, and 1997, with a budget of US$ 75 million, 150 million, and 14.5 million, respectively). According to the evaluation of the IEG, the level of accomplishment for the first project was marginally satisfactory, and unsatisfactory for the second (Kavalsky, 2006).

The Turkish health system prior to the 2003 Health Transformation Program (HTP) can be summarized as a corporatist system based on insurance payments, allocating benefits hierarchically and unequally, and providing limited coverage for those employed in informal sectors, unemployed, or unable to afford the insurance payments (Ağartan, 2012: 460–462). This was the case despite the intention for a national health service system fully funded from the public budget in line with the European welfare state model was embedded in the 1961 Constitution and the 1963 Socialization Law no. 224 (Kartal, 2009: 34–35).

The most comprehensive transformation of the healthcare system in Turkey occurred quite recently, with the implementation of the HTP starting in 2003. The 2001 economic crisis and November 2002 elections led to a dramatic change of course in the political and economic scene in Turkey, with significant implications for health policy. The process of the neoliberal restructuring of the Turkish economy that started in January 1980 has gone through a series of crises, yet the 2001 crisis led to a radical change in the balance of power that enabled a “pro-reform coalition”,

allowing the realization of long due structural reforms that were advocated also by international financial institutions (Keyman & Öniş, 2007: 141). The elections in 2002, on the other hand, resulted in the emergence of the newly-founded Justice and Development Party (JDP) as the strongest party with a majority in the parliament, while the traditional political elite suffered a significant blow, and the parties of the previous coalition government were wiped off the political scene.

With regard to health policy, the government program, the Urgent Action plan and the HTP[40] provided the key points. A commitment to the policy of neoliberal restructuring was apparent in all three documents. The declared objective of the program was to ensure efficiency, productivity and equity in the provision of health services (MoH, 2003: 24-25). The outstanding components of the program included the redefinition of the Ministry's role as regulator; the establishment of a General Health Insurance (GHI) that would provide universal coverage, equal access and services to all and act as a single purchaser; creation of a competitive service environment with the inclusion of private actors; family medicine (*aile hekimliği*) together with referral chain; decentralization and professional management.

The WB involvement in the redesigning of health services in Turkey since late 1980s is well documented, and indeed the components of the current reform program had already been defined in the 1991-1993 period (Belek, 2012: 22; Üçkuyu, 2004; Soyer, 2004). The major pillars of the policy complied with the neoliberal policies followed since 1980, and the recommendations of the World Bank since early 1990s included:

i. establishment of a single purchaser in the health system;
ii. focusing the Ministry of Health (MoH) on stewardship functions;
iii. making the public sector health services delivery network autonomous; and
iv. strengthening human resources management and information systems in the health system. (Chakraborty, 2009)

[40] Although it was basically the same reform program followed since 1992, the word "reform" in the title of the program was replaced with "transformation" in order to avoid negative connotations (Bulut, 2007: 119).

Although the policies put into practice were basically the same as promoted by the WB worldwide and formulated for Turkey in the 1990s, what made this period distinctive was that the transformation succeeded to a significant extent, without serious setbacks or popular unrest. According to a review by Tatar and others (2011), the concrete developments accomplished include:

> (…) improvements in citizens' health status; introducing the GHIS, thus enhancing the financial protection of the population; instigating a purchaser–provider split in the health care system; introducing a family practitioner scheme nationwide; transferring ownership of the majority of public hospitals to the Ministry of Health; introducing a performance-based payment system in Ministry of Health hospitals; and enhancing the accessibility of health care services of acceptable quality for the whole population. (p. xx)

In the early phase of the transformation project, when the content and objectives of the declared program led to the opposition of the professional organizations and trade unions, the issue of informal out-of-pocket payments occupied a significant place in public discussion. This was particularly relevant for the surgeons as the infamous concept of "knife payments" (*bıçak parası*) denoted that the patients were compelled to pay the surgeons in public hospitals extra money –either directly for operations or indirectly by visiting the doctors in their private offices (Tatar et al., 2007). This issue was particularly important for the popular perception of the surgeons, and was emphasized frequently by the government in order to legitimize the transformation program and to overcome the opposition of the medical doctors and their organizations. In 2002, 90 per cent of the specialist physicians at the MoH hospitals were working part-time and maintained private offices, which was an indicator of how widespread the issue of informal payments was. For the same period, the share of payments to surgeons was computed to be 23,5 per cent of the total informal payments (Elbek, 2015: 24; Liu et al., 2005).

In order to eliminate informal payments or unequal treatment of citizens and to standardize the services as well as improving their quality, the government took several steps. These steps included the legislation of a Patients' Rights Charter; the legislation prohibiting physicians employed in public hospitals to continue private practice; the introduction of performance based payment system together with performance measurement schemes; and the legislation on malpractice. These steps

were expected to empower patients by giving them the power to choose while disciplining doctors through rewards and punishments. As problems related to the increasing violence against the medical staff, the increasing expenditures resulting from the tendency for exaggerated use of diagnostic and treatment recommendations or the tendency for defensive medicine among surgeons surfaced, the transformation program has been criticized as the major cause (Terzi & Ağalar, 2010).

Since 2003, these components have mostly been put into practice with various laws, regulations and policies. The unification of the social security system and the establishment of the GHI were achieved with the passing of two laws –Act 5502 and Act 5510- in 2006 and 2008. The purchaser-provider split was achieved with the transfer of the hospitals of the Social Security Institution to the Ministry of Health in 2005. With regard to health workers, performance based payments systems started in 2005, and The Law on Full-Time Medical Practice of University and Public Sector Health Personnel was adopted by the Parliament in 2010. Global budgeting for MoH hospitals and free primary health care services for all citizens were introduced in 2006. The legal framework for the reform program is considered to be completed by 2011 with the Statutory Decree No. 653, as well as the Laws on Hospital Autonomy and Restructuring the Ministry of Health. As a result, the program could be considered to have matured, accomplishing most of its targets by 2013 (Ağartan, 2012; Atun et al., 2013; Bilaloğlu, 2015: 17; Tatar et al., 2011). As discussed previously, in developed countries where well-developed welfare system structures existed, the major objective in healthcare reform was cost containment through deregulation and marketization. In Turkey, on the other hand, the reform had to aim at increasing the health insurance coverage, which could lead to a contradiction with the aim of marketization (Ağartan, 2012).

The percentages of public and private spending as well as the distribution of hospitals, hospital beds or the surgical procedures applied constitute important indicators of the changing roles of the state and the market in the healthcare sector. The figures, as summarized in the tables 3 and 4 below, indicate that the role of the private sector, in terms of hospital beds, has increased from 7,5 % in 2002 to almost

20% in 2014, while the number of hospitals increased from 271 to 556 in the same period. The share of the public in total health expenditure, on the other hand, is around 78%, which is above the OECD average 73%. While there is an obvious trend of privatization, these figures indicate that public continues to dominate the health sector (Ağartan, 2012; Atun et al., 2013).

Table 4: Number of Hospitals by Years and Sectors, Turkey

	2002	**2010**	**2011**	**2012**	**2013**	**2014**
Ministry of Health	774	843	840	832	854	866
University	50	62	65	65	69	69
Private	271	489	503	541	550	556
Other	61	45	45	45	44	37
TOTAL	1.156	1.439	1.453	1.483	1.517	1.528

Source: Ministry of Health, 2015: 75

Table 5: Number of Hospital Beds by Years and Sectors, Turkey

	2002	**2010**	**2011**	**2012**	**2013**	**2014**
Ministry of Health	107.394	120.180	121.297	122.322	121.269	123.690
University	26.341	35.001	34.802	35.150	36.056	36.670
Private	12.387	28.063	31.648	35.767	37.983	40.509
Other	18.349	16.995	6.757	6.833	6.723	5.967
TOTAL	164.471	200.239	194.504	200.072	202.031	206.836

Source: Ministry of Health, 2015: 75

The concept of marketization, however, implies a broader array of changes other than the level of private provision and expenditure. The concept of *marketization* relates to the "the introduction or strengthening of market incentives and structures in the healthcare sector", and is characterized by such components as "creating markets, encouraging competition among providers, giving greater choice and voice to patients, establishing financial incentives for efficient resource utilization and higher quality of care and shifting decision-making and financial responsibility to service

providers" (Ağartan, 2012: 458-459). The spread of managerialism in the public sector, or the New Public Management paradigm, moreover means that these components are also valid for the public providers of services. As the management and efficiency of public services, the hospitals in our case, are based on the same management mentality, marketization occurs even with the greater part of the services being provided by public institutions.

Recent developments in healthcare also indicate an increasing commodification of healthcare, which refers to "the extent to which a country's provision of healthcare services relies on the market and prices are determined by markets" (Ağartan, 2012: 459). This, moreover, is combined with the growth of consumerism, whereby patients start to behave as consumers, choosing among alternatives services. The increased level of utilization of healthcare services, defined by some authors as an "explosion of demand", is an indicator of these trends. According to the statistics provided by the Ministry of Health, total number of ambulatory care visits to physicians amounted to 7,5 per capita from the level of 3 visits per capita in 2002 (Elbek, 2015: 35; Üçer, 2013: 78). Private hospitals have a greater role in this increase, as the applications to private hospitals increased more than 10-fold in the 2002-2011, while the overall increase has been 2,7-fold (Üçer, 2013: 259).

A similar, even stronger explosion of demand can be observed in the surgical services. In its 2010 Yearbook, Ministry of Health declared the total number of operations and surgical procedures as 8,6 million, 1,8 million of which were performed in private hospitals. This was a striking figure, implying that "11,5 per cent of the whole population were undergoing some kind of surgical operations in a year" (Üçer, 2013: 79). The numbers of surgical operations have been redefined by the Ministry in its subsequent yearbooks, given as 4,8 million in 2014. This drastic decrease, however, has occurred because the ministry stopped to include minor surgical procedures (categories of D and E) in the total number. The surgical classification is based on the World Health Organization's International Classification of Health Intervention (ICHI). In the yearbooks after 2010, the Ministry notes that the categories of D and E including diagnostic and minor surgical

procedures are not included in the total number of surgical operations.[41] However, this omission causes a drastic decrease in the number of surgical operations, which could provide valuable information related to the discussions regarding not only increasing demand but also about the topics of over diagnosis, over treatment or medicalization.

Even when the minor surgical categories of D and E categories are left out, the distribution of the A, B and C categories of operations among the private, public and university hospitals indicate a selective attitude based on the profit incentive, according to Elbek (2015). The higher portion of A category operations, "which are technically more difficult, require more intensive care afterwards and could lead to serious legal problems" were mostly performed at university hospitals, while the Ministry of Health hospitals, where there is an explosion in the total number of operations performed, and the private hospitals prefer relatively minor operations "which are technically easier, do not require serious care afterwards and do not cause serious legal problems" (p. 35).

Table 6: Number of Surgical Operations by Years and Sectors, Turkey

	2002	**2010**	**2011**	**2012**	**2013**	**2014**
Ministry of Health	1.072.417	2.039.021	2.209.326	2.298.893	2.414.538	2.445.424
University	307.108	576.547	617.477	664.695	715.889	765.549
Private	218.837	1.215.159	1.373.774	1.446.630	1.553.810	1.587.973
TOTAL	1.598.362	3.830.727	4.200.577	4.410.218	4.684.237	4.798.946

Source: Ministry of Health, 2015: 109

The Statistical Yearbooks published by the Public Hospitals Administration of Turkey (PHA) provide more comprehensive information on the total number of surgical operations as well as the categories, which are summarized in the Table 6

[41] Examples of these procedures include the implementation of cardiac pacemakers, open biopsy of soft tissue tumors, external nasal surgery (rhinoplasty) for the category of D, and cervical polyp removal, gastroscopic polypectomy or cervical biopsy for the category of E (Üçer, 2013: 261).

below. In his comparison of the data provided by the PHA and the Ministry, Pala (2015) observes an "epidemics of surgical operations"[42]: Given the total number of surgical operations in all categories (10.269.694 in 2014), he computes that this equals to more than 18.000 operations per 100 thousand people, which is twice the average number for those countries with the highest level of health expenditure.

Table 7: Distribution of Surgical Operations by Category and Sectors, Turkey, 2014

	Categories							TOTAL
	A	**B**	**C**	**A+B+C**	**D**	**E**	**Day surgery**	
Ministry of Health	193.783	847.028	1.404.613	2.445.424	1.262.081	2.118.969	4.443.220	10.269.694
University	118.532	299.459	347.558	765.549	264.922	416.813	118.785	1.566.069
Private	170.989	543.622	873.362	1.587.973	375.163	408.780	534.269	2.906.185
TOTAL	483.304	1.690.109	2.625.533	4.798.946	1.902.166	2.944.562	5.096.274	14.741.948

Source: Türkiye Kamu Hastaneleri Kurumu, 2015: 24.

These statistics on surgery clearly indicate that a drastic increase has been experienced in Turkey since 2002. Moreover, the share of the private sector in surgery has expanded significantly. According to the statistics of both the Ministry and the PHA, private sector performs more than 30 percent of all surgical operations in Turkey. This means that private health sector's share in surgery is greater than its share in overall health services provision.

[42] Both Pala (2015) and Üçer (2013) estimate that in less than a decade, almost all the population of Turkey will have undergone some kind of surgery or surgical intervention. For an account of unnecessary operations, often performed for illegitimate profit through the use of medical devices, see Çoban (2013).

Table 8: Distribution of Surgical Operations by Surgical Operation Groups and Sectors, (%), Turkey, 2014

	A	B	C	TOTAL
Ministry of Health	40	50	53	51
University	25	18	13	16
Private	35	32	33	33
TOTAL	100	100	100	100

Source: Ministry of Health, 2015, *Health Statistics Yearbook 2014*, p. 110

The statistics related to imaging devices and technologies demonstrate a similar increase. The intense use of these technologies is similarly associated with the processes of medicalization and marketization (Elbek, 2015: 35). This, in turn, is closely related to surgery, since these imaging techniques now constitute an inseparable part of surgical practice, but they are also intensely utilized by other branches of medicine for diagnostic and sometimes treatment purposes. Therefore, even if the total volume of their use cannot be associated only with surgery, it is reasonable to think that they are correlated. The following Table 9 lists the changes in the total number of equipment owned by health institutions over the 2002-2014 period, including the Magnetic Resonance Imaging (MRI), Computerized Tomography (CT), ultrasound devices, Doppler ultrasonography, and echocardiography (ECHO). The number of MRI devices per 1 million people was 9,5 and 10,5 for 2010 and 2011 respectively, which was significantly higher than most OECD member countries: In 2010, for instance, the rate was 2 for Israel and Mexico, 6 for the UK, 7 for France and 31,5 for the US, while the average was 12,5 (Üçer, 2013: 258-259).

The intensity becomes more visible when the number of imaging per 1000 patients is compared with other OECD countries. For the MRI, the number of use per 1000 patients is 80 in 2010 and 97 in 2011, while this rate in other OECD countries is 23 for Australia, 41 for the UK, 49 for the Netherlands and 60 for France. The total number of imaging, moreover, indicates that in 2011 one in 9 persons had been

scanned with CT, and one in 10 persons scanned with MRI (Üçer, 2013: 265). Elbek (2015) provides similar numbers for MRI and CT scans, emphasizing that the private hospitals are apparently performing MRI and CT scans more frequently than both MoH and university hospitals. This frequency, moreover, is in contradiction with the greater share of private hospitals in relatively minor surgical operations.

Table 9: Number of Equipment of Inpatient Treatment Institutions by Years, Turkey

	2002	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
MRI	58	562	625	678	709	720	751	757
CT	323	759	838	904	974	1.017	1.058	1.071
Ultrasound	1.005	2.117	2.283	2.436	3.775	4.282	4.756	5.286
Doppler Ultrasonography	681	1.095	1.251	1.397	2.091	2.480	2.793	3.151
ECHO	259	689	791	881	1.181	1.379	1.542	1.793

Source: General Directorate of Health Services, 2015: 84

Table 10: Number of Equipment of Inpatient Treatment Institutions by Sectors, Turkey, 2014

	Ministry of Health	**University**	**Private**	**Total**
MRI	256	98	403	757
CT	466	121	484	1.071
Ultrasound	2.782	639	1.865	5.286
Doppler Ultrasonography	1.670	353	1.128	3.151
ECHO	903	224	666	1.793
Mammography	305	81	517	903

Source: Ministry of Health, 2015: 84

The issue of increasing use of technology is particularly significant for the Turkish context. Turkey is not a developed producer of medical technologies, which means that it is dependent on imports. Figures indicate that Turkey's annual imports for the medical sector is close to $2 billion, among which the categories of medical and surgical devices and technologies constitute the biggest part, while the export-import

ratio is less than 15 per cent (West Mediterranean Development Agency, 2012: 14). As the statistics demonstrate, there has been a substantial increase in technology utilization with the HTP. The critics of the HTP frequently stress this point. Indeed, from the very start opponents argued that the marketization of health would lead to a greater dependence on exported technologies and that opening the Turkish market to international companies was a major objective in the promotion of these policies by the international organizations.

The points and statistics discussed above indicate that the impacts of the processes of privatization as well as marketization and commodification could be observed in the increasing role of the private sector in surgical services, in the increasing volume of surgical operations and imaging technology utilization and also in the distribution of these activities among different sectors of healthcare provision. What follows from these observations is that surgical craft is increasingly performed in a marketized and commodified context in contemporary Turkey.

The performance based payments system in public and university is a major topic where the consequences of marketization and commodification are crystallized. According to doctors and the TTB, the performance incentives are leading to selective attitudes of physicians towards procedures that have lower risk but higher performance scores. The report of a workshop prepared by the Turkish Association of Surgery (Terzi & Ağalar, 2010) provides valuable observations on this aspect. According to this report, the negative effects of the performance can be observed on various dimensions, including surgeon-patient relationship, intra-professional relations, workload, quality of treatment as well as the quality of surgical training. Some of the points emphasized are:

- Increase in workload;
- Increase in unnecessary diagnostic demands;
- Expansion in surgical indications, that is greater tendency towards advising for surgical operations, and towards diagnostic techniques that would emphasize surgical intervention;

- Increase in legal complaints and legal cases;
- Increased competition and unethical behaviors among colleagues; and
- A decrease in the popular prestige of the profession and in patient trust.

A final point that needs to be mentioned regarding the HTP is the codes and cases of malpractice. A mandatory insurance for doctors against professional responsibility cases was placed among the regulations introduced in the framework of the HTP. This insurance was regarded a part of the privatization agenda, since it aimed to create yet another market within the already marketized health sector rather than protecting the doctors (TTB, 2010: 22). The surgical branches are particularly open to malpractice cases due to the high risk of complications in operations. This could also be seen as part of the empowerment of the patients agenda pursued by the government whereby patients and doctors were brought into conflict with each other. The possible impact of such regulations on the part of the surgeons could be, however, a tendency to revert to "defensive medicine" or a preference for low-risk treatments and procedures. The current trends observed in the specialty preferences of junior doctors could be considered a direct consequence of such regulations, as surgery is discarded by the top 100 junior doctors in the *TUS* exams. It is extremely interesting that the person with the highest ranking preferred radiology for specialty training, while only one out of the first 100 opted for a surgical branch. Among the top 100, 23 chose dermatology, 18 ophthalmology, 16 radiology, and 12 physical medicine and rehabilitation. One comment on the changing preferences in these exams noted:

> Doctors prefer branches with lower risk and less shifts because of the malpractice cases. Assistants have to work shifts during their trainings depending on the branch they choose. Therefore assistants prefer those branches with little or no shifts. Even the income they will earn once they finish these departments is higher than the others.[43]

To summarize, the decline in public trust and prestige has been an important issue for a long time, and the process of transformation started in 2003 did not lead to

[43]http://doktorlarsitesi.net/2016/03/31/tusta-en-basarili-olan-doktorlar-artik-uzmanlik-dallarini-seciyor/

significant improvement in this aspect. There is a widespread perception among doctors that the steps intended to empower patients and legitimize the market-oriented policies led to a discrediting and degrading of medical profession, turning them into scapegoats. The "knife payment" (*bıçak parası*) topic was particularly significant in this, while the increasing violence against the medical staff was partly attributed to this discrediting rhetoric.

In conclusion, the transformation of health has been a major topic of debate since 2003, and a substantive body of literature emerged considering various aspects. Assessments of the objectives and overall success of the reform program vary according to the perspectives and political-ethical preferences. The program is considered as a success, particularly by those involved in its formulation and implementation but also by some observers (Atun et al., 2013; Horton & Lo, 2013; Tatar et al., 2011), while severely criticized by others (Belek, 2012; Civaner et al., 2013; Kılıç, 2013; Soyer, 2007; Sönmez, 2011; Yazıcı, 2014), even critiques also admit some improvement in the expansion of coverage as well as equity among various categories of employment, which also accounts for the high level of popular support and satisfaction (Elbek, 2015; Kılıçaslan, 2015).

The majority of studies, therefore, focus on the overall design or the political aspects of this process of transformation. With regard to its effects on the health workers and professionals, on the other hand, there are a number of works that are based on the concepts of de-skilling and proletarianization (Soyer, 2005; Ünlütürk Ulutaş, 2011). With regard to the basic concerns of this study, however, it is interesting to notice that the differentiation of the effects of marketization or commodification among the health professionals has not been carefully studied.

CHAPTER 4

METHODOLOGY

4.1 Conceptual Framework

Craft: This study investigates surgical work through the concept of craft. The concept of craft, however, goes beyond the immediate meaning of the term as work done by hands. Beyond this immediate meaning, the concept includes some significant social relations and dimensions. In the long history of the concept, three main features emerge as particularly important. The first feature concerns the nature of the work. Craft work is characterized by the unity of manual and mental labor. In other words, it is a type of work in which the design of both the end product and the production process are not separated from the execution of the necessary tasks. The craftsperson is responsible for both the design and execution of the work. Secondly, the set of skills required by craftwork are acquired by seeing, trying, mimicking and repeating over a long period of time. Therefore, the master-apprentice relationship is a defining feature of craft type of work as the principle mechanism for the transfer of theoretical, practical and tacit knowledge. A third dimension is that craftsmen have always existed as an organized group, through which they could limit the sharing of their expert knowledge and skills, claim power and autonomy over the definition of rules regarding acceptance of new members as well as the proper conduct of the craft. In this way, they could have power to negotiate with the state, market and customers in return for assuring standards of high quality service.

Surgical Craft: In accordance with the conceptualization of craft, surgical work is defined as a craft composed of six dimensions:

i. Skills and techniques
ii. Mastery-Apprentice relationship
iii. Output
iv. Autonomy
v. Aesthetics and creativity
vi. Character and attitudes

It should be noted here, as was also noted in section 2.2.3 where the concept of surgical was developed, that the components listed do not exist in absolute terms and are not immune to contradictions. This implies that the craft character of surgery, and other occupations, should be regarded as a matter of degree.

Technology: The concept of surgical craft is further elaborated to reflect its intense and specific interaction with technology. It is intense because the surgery could become an effective and prestigious branch of medical profession with the introduction of various technologies throughout the 20th century. The specific character of this interaction relates to the fact that the intensity of technology in surgical practice does not eliminate its craft character. Based on these observations, surgical craft is defined in this study as a *technology-driven craft*.

The surgical technologies considered in the study include all kinds of instruments, devices and machinery used for the aims of diagnosis and surgical intervention. In this context, surgical technologies range from the scalpels, sponges or cautery to prostheses, laparoscopy or robotic surgery equipment. This is a "narrow" definition of technology "as tools or machines", excluding a broader definition that would include "the organizational context of machinery". The reason for this preference is that it "allows a researcher to explore the possible independent influence of technology on work" (Edgell, 2006: 21).

Transformation of Healthcare: As part of the healthcare systems, surgical craft is regulated and controlled by various state agencies, while the state also acts as an employer or purchaser of surgical services. Surgery is also a part of a larger health industry, as market forces and mechanisms exist in all countries with varying forms, composition, volume or influence.

The national healthcare systems are undergoing a relatively uniform process of transformation worldwide, motivated by the containment of costs and standardization of services, and promoted by international institutions. The Health Transformation Program launched by the Turkish government in 2003 provides the framework of a similar reform process in Turkey. In that sense, the transformation of healthcare is conceptualized in this study as the legal, administrative and regulative changes introduced in Turkey since 2003, which have directly impacted on the practice of surgical craft in Turkey.

Marketization: In the context of this study, marketization refers to the processes observed both globally and in Turkey in the previous decades, whereby the share of the private forces in the provision and purchasing of healthcare services increased, the extent of welfare state services decreased and the health services gained the character of a commodity that is subject to market mechanisms.

In the light of this conceptual framework this study sets out to observe the practice of surgical craft in Turkey, the views and experiences of the surgeons regarding technological change and the interaction of the surgeons with the changes in the healthcare sector in Turkey.

4.2 Research Questions of the Study

This research aims to study surgical craft as it is practiced in Turkey in order to answer a series of questions. Based on the theoretical considerations presented in previous chapters, three basic questions are formulated:

To begin with, the field study aims to explore to what extent the components of surgical craft can be observed in the practice of surgery in Turkey.

The second question that leads the study concerns the impact of technological changes on the surgical craft. More specifically, what is questioned is to what extent surgery maintains its craft character in the face of technological change. The advance of laparoscopic and robotic surgery that dominates the agenda of surgery in recent years provides a suitable context for this inquiry. The differentiation among surgeons is also explored by questioning how surgeons at different points at their career are affected by these new technologies.

At the third step, the study aims to contextualize the changes in surgical craft in relation with the transformation of healthcare and marketization of health, processes that are currently active in Turkey. How do surgeons adapt to the processes of marketization and transformation? How is the craft character of their work affected? What is the impact of the craft character of their work on the choices they have and strategies they adopt? What is the impact of their intensive use of technology?

4.3 Significance of the Study

This study is expected to make significant contributions to a variety of literatures both conceptually and empirically.

First of all, the conception of surgical craft developed originally in this study is expected to provide a new perspective in understanding surgical work as well as investigating how craftwork continues its existence in today's world of high technology. Considering the relatively rare studies on surgery as work, this study therefore aims to make an empirical and conceptual contribution to the study of medical profession and professions as a whole. By focusing on the interaction between craft and technology, the study contributes to the sociology of work; while offering the concept of craft as an alternative framework in studying professional work, it aims to contribute to the sociology of professions.

Secondly, in the context of Turkey where the sociological study of professions is relatively less developed, this study may also contribute significantly to the recently burgeoning literature. Indeed, this study may be considered as the first attempt to focus singularly on the surgical profession in Turkey in a sociological study. In that sense, this could be the first occasion of a social scientist entering the operating room not as a patient but as a researcher. A focus on surgeons separately from the broader category of medical profession is not common in the international literature either.

Finally, the timing of the field study allows it to contribute to the literature on the sociology of health in Turkey. The surgical craft is studied at a time when the healthcare system has been undergoing a comprehensive transformation, and the impacts of this transformation are experienced daily by the surgeons interviewed. The reform policy and the marketization process has been subjected to social research in various aspects, but this study is original in the sense that it focuses on the surgeons as a separate group of health workers. This is expected to provide a different perspective by emphasizing the possible variations among different categories of health occupations in their interactions with technological and social changes.

4.4 Qualitative Methodology

In this study, I used a qualitative approach that combined both semi-structured interviews and observations. I chose in-depth interviewing as the major data collection technique, as in-depth interviews have some advantages such as face-to-face interviewing, less structured and more conversational features (Darlington & Scott, 2002: 49). I conducted in-depth, semi-structured interviews with a fairly open framework, which provided me with focused, explanatory, understandable, and rich data. Given the sophisticated, articulate, extremely well-educated character of the group, and the uniqueness (*sui generis*) of their profession in terms of scientific knowledge and skills required, a survey with structured questions would fail to extract information. It would unnecessarily constrain the surgeons in describing their

work, and other topics covered by the research. Qualitative research techniques provide valuable insights, and the more "detailed description and analysis of the quality, or the substance, of the human experience" provided by qualitative techniques are considered more useful for my research (Marvasti, 2004: 7).

Most of the data used in this dissertation came from interviews, which were done between February 2010 and January 2013. First of all, I conducted six pilot interviews in Istanbul from February 2010 to June 2010. After some breaks, the main field study was completed in Istanbul between May 2012 and January 2013.

4.5 The Field

The whole field research was conducted in Istanbul. Istanbul has been selected as the location of this study for being the most populated and most developed city in Turkey. Istanbul is also one of the most populated metropolitan cities worldwide.[44] Istanbul may also be regarded as the center of the health sector in Turkey, with respect to the number and volume of public and private hospitals, clinics, health institutions, health professionals, and health spending.

Turkey is a country with a relatively developed, complex healthcare sector, where the history of surgery goes back to the second half of the 19th century, and developments in surgery in the Western world have been closely followed, especially after the 1950s. The last decade has witnessed a particular increase in the number of operations performed annually, and the number of OTs.

Istanbul has played a central role in all these developments, and this is clearly observed in the statistics. Istanbul is the city with the highest number of hospitals in all categories (university, public and private); the highest number of operations; and the number of active surgeons: According to the Ministry of Health statistics for

[44] According to TurkStat Address Based Population Registration System Results in 2014, Istanbul's population is 14 377 018 person (TÜİK, 2015).

2014, a total of 236 hospitals (out of 1.528 in Turkey) are located in Istanbul (MoH, 2015: 3). The ratio of hospitals in Istanbul to the total number is highest in the category of private hospitals (163 out of 556), which can be taken as an indicator of how intensified the private health sector is in Istanbul. For the year 2010, the total number of surgeons working in the Ministry of Health hospitals was 13.633, while 2.608 of these were employed in Istanbul.[45] The total number of surgeons in other sectors for the same year was 9.222 in the private sector, and 3.762 in university hospitals. The number of operations performed in 2014 (the categories of A, B and C) are approximately 2,5 million in Turkey, with around 15 per cent of them performed in Istanbul (Kamu Hastaneleri İstatistik Yıllığı 2014, 2015: 110).

These figures and the numbers listed in the tables below indicate that Istanbul provide a convenient environment to observe surgical craft both in its interaction with technology and with regard to the effects of marketization.

Table 11: Number of Hospitals by Sectors in Istanbul and Turkey, 2014

	Ministry of Health	University	Private	Other	Total
Istanbul	57	12	163	4	236
Turkey	866	69	556	37	1.528

Source: Ministry of Health, 2015: 3

[45] It should be noted at this point that the information obtained from the Ministry of Health through an application in accordance with the Freedom of Information Act (Application number: 6290, Application Date: 21.06.2013) contradicts with the figures in the Statistical Yearbook 2014 of the Turkish Public Hospitals Institution. The reply to my FOIA application listed the number of surgeons in Istanbul as 399 in public and 462 in private institutions, thus significantly lower than the figures in the Yearbook. The information requested in that application also included the number of hospitals and their distribution among sectors, and no such contradiction occurred in those figures. Another application made in 2014 in order to update these figures, however, has not been answered.

Table 12: Number of Hospitals and Hospital Beds by Sectors in Istanbul, 2014[46]

	Number of Hospitals	Number of Hospital Beds
Ministry of Health	55	15.621
University	12	4.239
Private	159	11.762

I made contact with surgeons mostly via personal e-mails or telephone. The following criteria were considered in selecting the informants for interview:

i. Is the surgeon currently active, practicing surgery for at least five years?
ii. Is the surgeon currently engaged in intensive use of advanced medical technologies?
iii. Is the surgeon experienced in both open and closed surgery?

The Table 13 and Table 14 below summarize the distribution of interviewees with regard to gender, age, specialty and length of time in practice. Table 13 summarizes these characteristics for the whole group of informants, while Table 14 lists the age and length of practice for each informant. For the detailed Socio-Demographic Profile of the Interviewees, the table at the Appendix B can be consulted.

[46] Information obtained from the Ministry of Health through an application in accordance with the Freedom of Information Act (Application number: 6290, Application Date: 21.06.2013).

Table 13: Distribution of informants according to gender, age, specialty and years of practice

	Number
Gender	
Male	24
Female	2
Age	
Age < 35	1
Age 35-55	19
Age 55+	6
Specialty	
Cardiovascular Surgery	5
General Surgery	4
Orthopedics	4
Urology	4
Neurosurgery	4
Obstetrics & Gynecology	5
Years of Practice	
≤5 years	1
6-14 years	4
≥15 years	21

Table 14: Distribution of informants according to age and years of practice

Informants	Age	Years of Practice (year)
CVS1	59	29
CVS2	46	16
ORT1	48	16
OBG1	32	3
OBG2	46	17
OBG3	48	17
GS1	45	14
URO1	47	16
URO2	51	22
GS2	44	14
NS1	50	20
URO3	53	23
CVS3	61	29
URO4	47	18
CVS4	40	8
GS3	73	46
ORT2	65	33
OBG4	66	32
CVS5	49	21
NS2	66	33
ORT3	54	21
OBG5	49	17
NS3	52	21
NS4	55	20
ORT4	45	13
GS4	51	17

In accordance with these criteria, six surgical specializations where the use of advanced medical technology is most developed were determined. These specializations include cardiovascular surgery, obstetrics and gynecology, urology, orthopedics, general surgery, and neurosurgery.

Table 15: The number of active surgeons by branches chosen for the study, 2010

	Ministry of Health	University	Private	TOTAL
Cardiovascular Surgery	466	232	261	959
General Surgery	2.265	512	1.276	4.053
Orthopedics	1.240	308	714	2.262
Urology	1.117	287	591	1.995
Neurosurgery	654	235	332	1.221
Obstetrics & Gynecology	2.077	399	2.289	4.765
TOTAL				**15.255**

Source: Türkiye'de Sağlık Eğitimi ve Sağlık İnsangücü Durum Raporu, 2010: 61-62

In the selection of the surgeons, an additional criteria was to form a balanced list with regard to their employment: Whether they worked in public hospitals (state hospitals, training and research hospitals, public university hospitals), private hospitals (privately owned, foundation, or university), or worked independently (solo practice)? The final list, however, consisted mostly of private hospitals; due to the fact that private hospitals give priority to employing well-known, academically and professionally leading surgeons, and invest more in advanced medical technologies. This trend was further enhanced by the transformation program carried out since 2003. The resulting imbalance in the list of hospitals, however, is considered as ignorable, as this study does not attempt at a public/private comparison.

Table 16: Distribution of interviewees according to employment and surgical specializations

Surgical Specialty	Private	Public	Solo	TOTAL
Cardiovascular Surgery [CVC]	3	2		**5**
Obstetrics & Gynecology [OBG]	1	3	1	**5**
Urology [URO]	2	2		**4**
Orthopedics [ORT]	4	-		**4**
General Surgery [GS]	2	1	1	**4**
Neurosurgery [NS]	4	-		**4**
TOTAL	**16**	**8**	**2**	**26**

4.6 Sources of Data

The data used in this dissertation came primarily from the semi-structured in-depth interviews conducted with surgeons from public and private hospitals during the field research in Istanbul. Along with these interviews, non-participant observations obtained in the OTs and hospitals offered substantial data. The visual data obtained in the OTs during operations were also used.

Before setting out with the interviews, I prepared myself academically by reading the sociological literature on medicine and surgery, and practically by studying how things work in the hospitals and operating theaters, through observation, reading and watching videos of operations.

I started by conducting pilot interviews with six informants, from February 2010 to June 2010. This was a crucial step, as I could determine which specialties to focus on, revise and finalize the interview questions, and decide on the criteria I should consider in selecting the surgeons for interview.

My first informant was an anesthesiologist with twenty years of experience. Although not surgeons themselves, anesthesiologists are the closest colleagues of the

surgeons in the OT.[47] She described the division of labor and hierarchy at work with surgeons, and explained the crucial points of transition from the old manual techniques to current completely automatic and machine-based anesthesiology. Her observations regarding the changes in surgical techniques, and the master-apprentice relationship in surgery were also informative for me.

After this initial interview, the first surgeon I interviewed was a senior cardiovascular surgeon. He was quiet encouraging and informative. He talked extensively about the transformation of surgical work in recent years, and the course of relationship between surgeon and technology. He was an enthusiast of technology, defining himself as 'technology-aggressive', and claiming that technology "made him a better surgeon". This informant was very talkative, relaxed, and clear. He seemed to enjoy being interviewed. There was no operation that day, so he could spare time, and spoke more than three hours. He was very interested in my research, and invited me to attend a critical by-pass operation in the following week. The second cardiovascular surgeon I interviewed had a more conservative approach to the 'issue' of technology in medicine. She strongly defended the necessity of the master/apprentice relations in surgery, predicted that it would continue to be central despite technology making room for itself. She was a very senior cardiovascular surgeon, at the age of 60, and the chief of the clinic, with a very formal and serious attitude. The time she gave me for the interview was just 30 minutes. These two cardiovascular surgeons were working at a public hospital of cardiovascular surgery.

My fourth informant was an ex-cardiovascular surgeon. This interviewee also turned out to be quiet interesting: as a very successful student –he was in the first 50 at the university entrance exam- he had chosen the medical school and become a cardiovascular surgeon, but had quit surgery after practicing for ten years. He was still working closely with surgeons; offering them a professional service in their academic publications, by translating, editing, and proofreading. He talked about his past surgical experience, and explained why he had to and wanted to quit this

[47] For a study of surgery that emphasizes the role of anesthesiologists, see Fox 1992.

occupation. My next informant was a senior orthopedic surgeon working at a private hospital. My last and sixth pilot interviewee was a junior surgeon in obstetrics and gynecology. He was at night duty and we talked at his office until morning hours. His room was next to the delivery room, so the interview was often interrupted because of the women laboring, and screaming in pain in the next room. As a member of the youngest generation of surgeons, he pointed out how they used technological equipment intensively, even to the point of being 'addicted to technology'. He also added, on the other hand, that his generation could not find much chance to observe 'the hands of their masters', and they could not find "masters" that would offer extensive teaching of traditional techniques. As a consequence, they performed palpation (*elle muayene*) less frequently in diagnosis, reverting instead to imaging technologies and other devices. Even though this surgeon was young and junior, I added this interview to main interviews, due to the fact that his statements were important in emphasizing that they were instructed to perform their job more and more with technological devices rather than through palpation. During the pilot study period, I also attended a bypass operation, and observed the whole procedure from beginning to end. On another day, I spent a day in the cardiovascular surgeon's clinic. He gave me a white coat, which provided me invisibility while I observed his daily routine of examinations and pre-operative consultations with patient, or drank coffee with surgeons in the secluded environment of the restaurant within the operations area.

Interviews: After the fruitful session of pilot interviews, I determined the main surgical specialties to investigate. I started the interviews in May 2012. I picked the informants through the media, medical magazines, private networks, or through coincidental links. I contacted 48 surgeons, 26 of which provided informed consent to be interviewed. Most of them are quite popular names in their surgical specialty, not only in Turkey, but also worldwide. Therefore, I had to wait for 4-6 weeks or even more for an appointment.

My interviews were semi-structured, since I wanted to take detailed information from surgeons with their own expressions, and record how they defined their work,

instead of limiting them to open-ended questions. A series of mostly close-ended questions were aimed to acquire demographic information about the population involved. When requesting appointments, I told them that the interviews would take around 45-60 minutes. In some cases, I changed this into 30 minutes in my e-mail messages, considering that this could be the reason for their indifference to my earlier requests. In the end, the duration of interviews ranged between 30 minutes 180 minutes. I interviewed a total of twenty-six active surgeons who worked in public or private hospitals in İstanbul. The Table-17 below summarizes the distribution of surgeons with regard to gender, specialty, and type of employment.

Table 17: Distribution of Informants according to gender, surgical specialization, and type of employment

SURGICAL SPECIALTY	Private	Public	Solo	Male	Female	T O T A L
Cardiovascular Surgery [CVC]	3	2		4	1	**5**
Obstetrics & Gynecology [OBG]	2	3		5	-	**5**
Urology [URO]	2	2		4	-	**4**
Orthopedics [ORT]	3	-	1	4	-	**4**
General Surgery [GS]	2	1	1	4	-	**4**
Neurosurgery [NS]	4	-		3	1	**4**
T O T A L	**16**	**8**	**2**	**24**	**2**	**26**

I conducted the interviews in various spaces: Surgeons' clinics, operation rooms, examination rooms, coffee shops, restaurants, and even once in surgeons' cars – thanks to Istanbul traffic. So, all the interviews were conducted at various places, in accordance with the preferences of the surgeons. With the permission of the surgeons, I tape recorded and transcribed all the interviews, except one case when the interviewee did not consent to recording. Before each interview, I collected

information about the interviewee from their personal or institutional webpages, blogs, and from other media such as newspapers, TV programs, videos, or internet forums. After every interview, I wrote down my observations about the interview, the surgeon, his/her hospital, and the environment in the waiting rooms.

At the start of interviews, I was the one to be questioned first. They asked me how and why I engaged in such a research topic, what meaning/significance their work carried for social sciences, and with whom and which surgeons I had interviewed before; so they actually checked if I were prepared well enough for the interview. I declared clearly my 'scientific' intention and explained my research subject and goals, except not share my previous surgeons' name. Most surgeons were positively willing to talk about my thesis.

One of my first impressions was that they were accustomed to being interviewed, mostly by journalist. They are articulate, overly self-confident, analytical, curious, very smart, and generally talkative. Their responses to my questions were precise, and to the point. Although their initial attitude was to spare as little time as possible, bargaining with me for a 'short' interview, in almost all cases as we met on the appointment day and began with the talk about my research, they were willing to extend the interview, to share more experiences, and anecdotes and interesting memories about their occupation. One common point was their emphasis on how surgery occupied all their lives, becoming a life-style rather than a job.

In most cases, they tended to complain about recent development in health system, which amounted to an extensive overhaul of legal and institutional and financial framework. Although not a central part of my research, they were eager to talk about the health transformation program enacted by the government since 2003, and its implications for surgeons. I started the interviews by giving assurance for anonymity, but some surgeons demanded their names to be specified clearly in the thesis. All names are, however, kept anonymous with no exception. They were also curious about the other surgeons I had interviewed, particularly in the same specializations, but I did not share this information with them. Another remark related to the

interviews is that coming from the Middle East Technical University was effective in building up trust on the surgeons, and they also put this into words. Finally, in most cases, they stated that they were keen on to read the thesis and they wondered the result of this research.

The semi-structured interview questionnaire consisted of six sections:

(i) Socio-demographic characteristics
(ii) Work
(iii)Profession & Medical profession
(iv)Craft/Craftsmanship & Surgery & Technology
(v) Transformation Health system in Turkey
(vi)Miscellaneous

The first questions were about their socio-demographic profiles, inquiring about where they were born and raised, marital status, family members, number of child(ren), the high/medical schools they attended, the period of medical practice, years in practice, surgical branches, residency institution and year, the occupations of the parents.

In the second section, I asked questions about their history of work and employment, weekly working hours, weekly/annually numbers of operations, total number of operations, daily sleeping period, caffeine consumption in the last 24 hour, daily work routine, and leisure-time activities.

In the third section, the first questions intended to inquire about how they described their job themselves, the operations and treatments they most performed, how they differentiated surgery from other occupations; the extent of autonomy the enjoyed in their work; the division of labor and hierarchy in surgery; recent changes in their labor process, new techniques, and so on.

In the fourth section, my questions were related to craft, craftsmanship, and technology. This part was quite important with regard to the problematic of the thesis: most important skills in surgery; the meaning of hands for a surgeon; the

proportion of usage of technology and hands in treatment; the significance of technology in surgery; the multi-skilling/over-specialization discussion in surgery; robotic surgery; technology from the perspective of the patient; changes in medicine in the last 20-30 years; and how they assessed the effect of technology in treatment. In brief, this section attempted to inquire how they came to terms with the technological changes in their work.

Although the recent transformation of the health system in Turkey together with the issue of malpractice were not essential parts of the problematic, the pilot interviews made it clear that these topics occupied a dominant place in the agenda of health professionals. In every chance of expressing themselves, surgeons wanted to express their complaints, even outrage, on these topics.

In the miscellaneous section, I asked about miscellaneous aspects of this profession such as pros and cons of being a physician, the significance of Hippocratic Oath and the white coat; medical ethics, and so on.

My observations of the "surgeons at work", of the operating rooms and operations comprise a significant part of the primary data collection. During the research period, I attended 15 operations in six different branches as an observer, and spent more than 80 hours in the OT. In all these occasions, I had my notebook, camera and tape-recorder with me. Attendance to operations required a preparation separate from preparation for the interviews. I had to learn about the organization of the OT, the codes of conduct during the operations; I had to find a place where I could stand sufficiently away from the sterile area but suitable for observation. After a couple of operations I was hearing fewer warnings, especially from the nurses and anesthesiologists, which I took as a sign that I managed to adapt to the environment. I was always at the OT before the operations started in order to watch the preparations, and I stayed there until the end, leaving together with the surgeon. The observations during the operations were supported by the time I spent in the unsterile areas of the operations floor (including the corridors, cafeteria, dressing areas), where I could engage in small talks with surgeons and other staff.

The moments of each entry to the OT were very exciting for me. It was a completely alien ground for me, evoking feelings of anxiety, curiosity, and excitement, as well as privileged. The first stop was the dressing rooms. When I came across other women, who I guessed were surgeons, nurse, or anesthetists, their immediate reaction was to suddenly turn their heads and to gaze at me for a while, once they noticed that I was a stranger. I felt to be a total "layman", a stranger, an outsider. Only when I asked where the greens were, they helped me provided that I had explained the reason for presence there. Their looks made it clear that I had to introduce myself. Once I was in a surgeons' green operating room costume, I could suppose myself as one of them, hence feeling relaxed and becoming "invisible". This would not also last long, as I would quickly realize that my body language and my notebook would reveal that I was an outsider. In some cases, it turned out that I had been regarded as a medical studied at internship.

In most cases, I attended operations conducted by different surgeons and/or teams at different hospitals. In each case I had requested and obtained permission from the surgeon for attendance. However, when I arrived earlier than the surgeon, and he/she had not introduced me to the team, they greeted me with suspicion and investigated me by glaring at and asking questions such as "Who are you*?"* They generally avoided further conversation with me until the arrival of the surgeon. Usually, all the staff became more friendly and helpful once they were assured that I was careful not to stand in their way. In one hospital where I observed for more than a week, and attended a series of operations with the same team, I was accepted as a part of the environment. In a few cases, I was even asked for some minor help during the operations.

While observing the operations, I also felt being observed continuously by the OT staff. If I stood in their way, or disturbed the rules of hygiene, I was warned in strict words ("Will you step aside, honey!"- *"Biraz kenara çekilir misin canım?"*). When I succeeded in assuring them of my proper conduct, I was rewarded with invitations to the cafeteria, or by letting me choose the music to be played in the OT.

Table 18: The List of Operations Observed

#	**Surgical Specialty**	**Operation Case**	**Duration (hour)**	**Hospital**
1	Cardiovascular Surgery	Coronary bypass surgery	5 h	Public
2	Neurosurgery	Removing a benign brain tumor	4,5 h	Private
3	Urology	Bilateral Laparoscopic Pudendal Nerve and Sacral Roots Decompression	6 h	Private
4	Cardiovascular Surgery	Coronary bypass surgery	5 h	Private
5	Cardiovascular Surgery	Coronary bypass surgery	5 h	Private
6	Cardiovascular Surgery	Coronary bypass surgery	5 h	Private
7	Cardiovascular Surgery	Coronary bypass surgery	5 h	Private
8	Cardiovascular Surgery	Heart valve replacement surgery	6 h	Private
9	Cardiovascular Surgery	Coronary bypass surgery	5 h	Private
10	Orthopedics	A bone lesion biopsy	1.5 h	Private
11	Orthopedics	Ilizarov External Fixator removal + Distal Femoral Locking	3 h	Private
12	Obstetrics & Gynecology	Laparoscopy & Hysteroscopy	1,5 h	Private
13	General Surgery (Transplant Surgery)	Liver transplantation (Live donor liver transplantation)	9 h	Private
14	Urology	da Vinci Robotic Surgery (Prostate cancer)	4.5 h	Public
15	General Surgery	Total stomach removal (Stomach Cancer)	7 h	Public
		TOTAL DURATION	73 h	

Visual materials were also collected during the field research. I always took my camera and sound recorder with me to the OT. As far as I could obtain permission from the surgeons, I extensively photographed and filmed. In the end I had an extensive collection of visual material, comprising of approximately 900 photos, and 70 minutes of video. In all these material, I paid utmost attention to avoid scenes that would reveal the identity of the patients. I just focused on the hands of the surgeon,

the harmony of the hands and the tools and devices, the organization of the OT, and interactions among the staff. Besides serving as a memory tool for me, analyzing them in order to reflect on the nature of surgical work also enriched my analysis.

While visual materials can be regarded as being too subjective to be included in the data collection, I consider these photos and films as a valuable part of my observations. I did not conduct an ethnographic research based on participant observation, yet the OT observations were essential for me gain a closer grasp of the surgical work. Such materials are also gaining acceptance, as they are considered as "ways of forging connections between human existence and visual perception" (Denzin & Lincoln, 2005: 644). According to Jupp (2006), who points at the subjective element in all qualitative social research, "visual materials are just as valid as written or verbal data" (p. 321).

As I attended operations, I had the opportunity to observe more than fifty surgeons other than my informants. They were either equally senior or younger surgeons. Sometimes I came across them in the corridors, and we engaged in informal talks, in which both sides were curious about the other. In some cases, this mutual curiosity resulted in the surgeons inviting me to their operations, and in fewer cases they became my next informants.

After the operations, I was invited by the staff to lunch or to the cafeteria, still within the operations floor. In such cases, they started by asking questions to me, and later they spoke about their jobs, making comparisons with the past, mostly in narratives taking the form of "our masters used to do things this way, while we use much more technology today".

Conversations with the nurses, perfusionists, and other personnel in the non-sterile areas were also valuable in helping my understanding of the surgeons, and surgical work.

In addition to primary sources, I benefited from supplementary sources that included attending meetings related to medicine, surgery, and health; daily newspapers,

medical magazines, private hospital health magazines, popular books on health, and surgery; biographies and autobiographies of surgeons; talk-shows, interviews and debates; as well as popular serials such as *House M.D., The Knick, Grey's Anatomy, Nurse Jackie, Call the Midwife*. I attended a series of oral history meetings conducted in a public hospital[48] in Istanbul, the regular meetings at INSEV.[49]

The periodicals I followed include medical journals published by Turkish and foreign medical associations, including *Medimagazin, Hekim Postası, Toplum ve Hekim, Wellcome News, Wellcome History,* and *Eurohealth*.

All the interviews were recorded, and then transcribed verbatim. These transcriptions were imported to the qualitative analysis software *Atlas.ti*. The interviews and field notes were analyzed to create codes. The initial codes were based on the interview questions, and they were revised and new codes were added as the data from fieldnotes and observations were considered.

4.7 The Limitations, Difficulties and Confidentiality of the Study

Two major limitations appear in the selection of surgeons and hospitals. The first one is the imbalance of women, as only two of the informants were female surgeons. This should be considered as a reflection of the fact that in Turkey, as well as in other countries, surgery is known as a male-dominant occupation.[50] The number of women surgeons in Turkey, however, is reported to be increasing, while the number of women members of the Turkish Surgical Association was almost 100 (out of a total of 1991) in 2009, and the number was close to 500 for all surgical (Terzi et al.,

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[48] Bakırköy Prof. Dr. Mazhar Osman Ruh Sağlığı ve Sinir Hastalıkları Eğitim ve Araştırma Hastanesi (aka Bakırköy Ruh ve Sinir Hastalıkları Hastanesi)

[49] İNSEV (*İnsan Sağlığı ve Eğitim Vakfi*) [Association for Human Health and Education] is a non-governmental organizations working in the area of public health, and is the representative of the transnational People's Health Movement in Turkey.

[50] See Freischlag, 2008; Bass, 2006.

2009: 9). However, as gender-related issues do not form an essential part of this dissertation, this limitation can be considered as acceptable.

The second limitation could be the public/private imbalance in the distribution of hospitals. The greater number of private hospitals is basically due to the effects of the health policies implemented since 2003. In this period, increasing number of experienced surgeons preferred to work in the private sector, leaving their posts at public or university hospitals. Again, as this research is not related to the issue of privatization or marketization of health services, this imbalance could be considered a non-essential.

The first and foremost difficulty in conducting the interviews was to get appointments from surgeons. Surgeons are well-known for their busy schedules. In some cases I had waited for a month or more for an interview, while in others surgeons accepted my request immediately, saying that my dissertation topic was very interesting. Most of the interviews were conducted at their offices at the hospitals or outside, but in some cases interviews were made at interesting places: in a surgeon's car in busy traffic, at a dinner table in a restaurant, or during an operation. In all cases, the timing and place of the interviews were determined by the surgeons. Except a few cases, interviews could not start at the arranged time, and I had to spend long hours waiting in the waiting rooms or lobbies. Interviews were frequently interrupted by patients, nurses, secretaries, or phone calls, some therefore lasting for 3-4 hours.[51]

Observing the operations presented particular difficulties. As places strictly closed to laymen, entering the OTs, getting accustomed to the codes of conduct were tiresome and took time. Perhaps the greatest difficulty was physical: standing for up to 9 hours, with no breaks for lunch, coffee or bathroom; sometimes getting cold after the operations due to the low temperatures in the OTs; and last but not least, the smell and sight of blood and flesh. Operations including critical cases, or open surgeries

[51] On the difficulties of studying surgeons, see Singer & Baer, 2012: 47-48.

also presented emotional difficulties, particularly in the case of a liver transplant from a father to a 7-months old baby.

Interview confidentially is very significant in a scientific research. Participants have the right to demand privacy and anonymity, and the researcher is obliged to respect this. In compliance, I do not disclose the names and institutions of the surgeons, and used code names in the text. All names were renamed in accordance with the surgical specialties and the order of interviewing.[52] In the case of visual records of the operations, extreme attention was paid to keep the patients anonymous and unidentifiable.

[52] I should remark that some participants, interestingly and insistently, requested for their names to be visible in the final text rather than staying anonymous.

CHAPTER 5

SURGICAL CRAFT IN TURKEY

This chapter and the following two chapters represent the findings of the field study conducted on the basis of theoretical and methodological framework developed in the previous chapters. The analysis built on this field study will progress in three steps. The first step, which is presented in this chapter, is aimed at observing how surgery is performed in contemporary Turkey in order to assess its craft character.

In the section 5.1, the chapter starts with a description of the surgeon's workplace, the operating theatre, based on the observations of the researcher obtained through visits to hospitals and attending operations. These on-site or at-work observations were deemed necessary due to the closed nature of surgical work performed mostly out of public sight. As the work by hands is a defining feature of any craftwork, observing surgeons while they use their hands was considered necessary. More generally, the tasks performed within the operating theatre constitute the major part of surgical work, and these are not easily accessible to outside observers, or the layperson. The operating theatre, therefore, is the workshop for the surgeons. The closed nature of this workshop is reflected in the ethnographic style of the section, providing an account of the researcher's experience in entering the operating theatre, accompanied with observations on the atmosphere and interactions among the whole staff.

The following sections are organized according to the conceptualization of surgical craft developed in section 2.2.3. Each section (from 5.2 to 5.7) is devoted to a single component of the concept: Skills and techniques, master-apprentice relationship, output, autonomy, aesthetics and creativity, and character and attitudes. Together these sections aim to provide an account of the surgical craft as it is performed by the surgeons interviewed. Through their experiences, the sections enable an assessment of the extent to which the concept of surgical craft offered in this study corresponds with the reality of surgery in Turkey.

The following chapters will be devoted to assessing the impacts of recent technological developments on the surgical craft (chapter 6), and the effects of changes in the three categories of state, market and patient on the surgical craft (chapter 7).

5.1 Surgeon's Workplace: The Operating Theater

This section is based on direct observations conducted during various operations conducted in the OTs of different hospitals. The section starts with the description of the atmosphere of the OT as a work space and its features as a work environment. These will be followed by observations concerning the division of labor and interaction among the surgeons and other surgical staff inside the OT. In accordance with the selected surgical specializations[53], these observations also include the daily activities of the surgeons and other staff both inside and outside the OT –at the cafeterias, lunch halls, offices and resting spaces along the OT corridors. The observations extend to the pre-operation period when the staff prepares themselves

[53] These specializations include cardiovascular surgery, obstetrics and gynecology, urology, orthopedics, general surgery, and neurosurgery. I attended 15 operations in six different branches as an observer, and spent more than 80 hours in the OT.

and the OT for the operation, as well as the start and ending of the operations. At this observation stage of the field study, surgeons were observed *at work*, with attention to how they do their work, how they use both simple devices and complex high-tech products in complicated cases and how they interact with the rest of the surgical team.

It should be noted at this point that even though surgeons are identified with the OTs, their workplaces are in fact scattered around the hospitals: If they are working at a university or a training hospital, they are supposed to lecture medical students –the apprentices- or demonstrate the craft in practice; they see patients at the clinics, and usually at the wards before the operations. According to the result of the clinical examination, a decision to operate may be taken or rejected. The days of clinics are determined and only some days of the week are assigned for consultation. But most importantly, the OT is the main workplace for surgeons and it is the place where their surgical skills become visible. They exhibit all their occupational knowledge and dexterity in this room, where mostly of the treatments are realized. The OT is the place where a surgeon may feel to actually realize himself/herself[54].

5.1.1 Operation Theatre as a *Workshop*: Smelly, Bloody and Cold

The first question to ask about these spaces is why they are called as "theatre"[55]. The answer is related to "the personal performance aspect of surgical practices" (Katz, 1999: 53). Surgery is a real drama and the surgeon is performing a performance on the body of the patient. The audiences of the surgeons are, however, usually limited to those whose are there to assist and help them during the operation. Besides,

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[54] "The disproportionate emphasis upon the personal skills of the surgeon, even in modern times contrasts sharply with the small proportion of their time (20-25 %) that most present-day surgeons actually spend in the operating-room." (Katz, 1999: 53)

[55] It is used as operating room or OR in American English, and operating theatre or OT in British English.

medical students and other doctors have traditionally attended operations as spectators, and the operating rooms have sometimes been designed like a stage.

OT is among the most significant parts of a hospital. It is situated usually in the most remote part of the building, carefully isolated from the other clinics and public spaces, with separate elevators and stairs. Entrance to the OT is through a single door with the label *Ameliyathane* on it. Once entering through this door, one can move through different, passing from one room to the other. This leaves on the person the feeling of passing from an outer circle into an inner circle. In each circle one passes, the temperature is lowered and the rules of hygiene become stricter. In each breach of a rule or neglect, one is directly and officially warned by the colleagues.

At the heart of this space lies the OT, in the most inner circle, covered with glass doors. All the preparation is for the rituals within this room. The concept of ritual may remind rites, mystical and sacralized moves or ceremonies, but surgery has no affinity with such content. The difference comes from the fact that the ritualized nature of surgery refers to its routinized, repetitive and standardized features, "embedded in the traditions of empiricism and based upon principles of systematic empirical science" (Katz, 1999: 198). This is how Katz (1999) describes the surgical ritual:

> Rituals are used when boundaries between categories are distinct and when there is potential confusion about the appropriate behavior expected, such as transition … [s]urgical rituals mark transitions between sterile and nonsterile … The operating room rituals include: a) separating sterile from nonsterile objects; b) passing through the three stages of surgery (incision-excision or repair-closure); c) managing unanticipated events, such as cardiac arrest or sudden hemorrhaging; and d) matching information, such as blood types, operative sites, or instrument counts. (p. 195)

Spaces with strict and special rules may evoke feelings of compulsion and alienation for those who do not belong there. For a lay person, even when the rules are studied theoretically beforehand, making mistakes and being warned by others is inescapable. Each action is unfamiliar to the stranger, increasing the possibility of mistakes.

Immediately at the entrance of the OT, there is a desk, where a nurse is responsible to coordinate and control who enters or exits the OT, which patient to be taken to which room or which operation will be conducted in which room. This place and the corridors are the outer areas. Around the desk lie changing rooms reserved for male and female surgical staff, with lockers to leave the personal items and the clothes of the "outside". There are greens and blues on the shelves, all uniform but available in different sizes.

Along the corridor there are several office rooms, sterilization rooms, resting rooms for the surgeons and surgical staff as well as cafeteria or tea room and reanimation rooms for the patients recovering from the operations. In the more inner parts of the OT there is also a lunch hall. There are no specific meal times at this hall; food can be found any time since the staff works 24 hours. All the staff is in sterilized uniforms in the corridors. Everyone has sterilized clogs, surgical caps and masks that are used during the operations and hanged loose in other times. The doors of the OT are glass sliding doors, which are opened automatically and allowing the staff in and out without violating the rules of hygiene.

OT is the real workshop. The diseased bodies are repaired in these spaces. Just as in a workshop, this place has its own strict and traditional rules and hierarchy. The master-apprentice relationship is observed between the surgeon and the assistant surgeon. The surgeon describes the intricacies of the craft while actually performing them on some part of the patient's body. Both design and execution are performed in the OT. No matter how detailed the operation for each case has been designed, even written down, by the surgeon beforehand, in response to any contingent situation during the operation the surgeon's creativity enters the picture –as each operation is case-specific. The device called "electrocautery" is used to open incisions on the body. The electrocautery opens the incision by searing, and small clouds of smoke appear under the spotlight. After cautery, a dense smell of burned flesh and blood fills the room. This is obviously a natural part of the work, yet it is not easy for a layman to consider this simply as an output produced in a "healing workshop", and will result in the health of the patient with the organs repaired. Still, one gets used to

the smell in time.

> We entered the OT in sterile clothes together with the cardiovascular surgeon (CVS1) that I interviewed previously. He said "good morning" to everyone and introduced me. (…) CVS1 left his bag and a special wooden box on the table at the corner. Then he took the special magnifying operation glasses from the box. As he explained later, he bought these glasses in the US for $2000 and the state does not pay for it. So the surgeons are usually obliged to pay for these themselves, as they must use it. (…) This place is really big and very cool. The thermometer on the Wall shows +18 degrees. These OT clothes are so thin… There are 7 more OTs with passages through each other. Doors are very wide. They are all glass and automatically opening and closing (…) As soon as I entered the room, the whole OT staff stared at me from head to toe; then turned back to their work. (…) The patient was anesthetized when we entered. All the body was covered in baticon and completely naked. (…) This is the first operation of the new assistant surgeon with this team, looks very nervous … In the observations at the clinic, on the day I spent with the CVS1, I witnessed his first talk with this assistant. As CVS1 did not send me out, I witnessed the whole conversation; CVS1 explained how he is during the operations, what he expected from the assistant, the rules to be obeyed and so on… The operation started. The patient is in severe risk, 5 of his veins will be replaced, bypassed. In anesthesia corner there are 3 person, 2 surgeons are beside the operating table, there are also 1 scrub nurse and 1 OT personnel (…) The assistant surgeon cut through the patient's chest with a special electrical device called cautery (it cuts the skin by searing). A very intense smell of blood covered everywhere. There are 2 very strong lights above the table. When you look at those lamps you see the smoke rising. (Field notes, 2011)

Besides the physical burdens such as long working hours, night shifts, continuously standing up, this is an emotionally burdened job. What is expected is the suppression or normalization of this emotional burden, rather than its overt expression. For after each difficult case, the surgeon is expected to have the energy to pass on to the next one. For an experienced surgeon familiar with such cases, an operation ending in death becomes "a natural part of the job", becomes "normalized", becomes "a case with heavy risk of death". For a layman observing the OT, therefore, grasping and description of the course of the work in this space is not easy.

Working in this space requires, alongside the knowledge of the written procedures, the learning of rules that could occur only in time, through experience and training. These strict and complex set of rules constitute the codes of conduct, and the hygiene rules are at the top of it. Scrubbing is indeed a very important first step of the ritual. The surgeons, nurses and surgical assistants who will take part in the operation wash, rub and brush their hands up to their elbows and their fingernails carefully with sterilizing soaps. This phase is not shortened or quickened. Sterility rules in surgery are a real obsession.

The words “clean”, “dirty”, “sterile,” and “contaminated” frequently expressed among the staff indicate the stages of the operation as well as the level of sterilization. Dirty objects, for instance, are either waste or to be cleaned once more. The instruments and clothes are in the category of contaminated. The floors, walls and the furniture are cleaned with special antiseptic solutions. The air inside the OT, moreover, is continuously cleaned through the laminar air filter system, before, during and after the operation (Katz, 1999: 188).

The OT personnel wear the same sterile clothes, usually green or blue, and the clogs, masks and surgical caps. These unisex sterile clothes –same model, different sizes, with deep V-shaped collars and pockets, two pieces- are comfortable and functional. Only the surgeon, the junior surgeons supposed to assist and the scrub (or surgical) nurse put on an extra layer of sterile clothes. Around the operating table on which the patient lies, where the surgeon to conduct the operation and the assisting staff will stand is defined. This is not a matter of debate. The rules never change. Within this “sterile area” in the middle of the room, only the surgeon, assistant surgeons and the scrub nurse can stand. No one else can enter this area, and the remaining staffs are located outside of it.

The atmosphere within the OT is completely different for the layman. The conversations are sincere and similarly informal. Interesting dialogues can be witnessed among the surgeon, the anesthetists, nurses and assistants: While the surgeon’s eyes and hands are busy with the patient’s body, he asks the nurse about her sick child, without moving his head. The two circulating nurses can be joking with each other. The anesthetist and the anesthesia technician may be speaking about the movie they watched the previous night. Assistant surgeon may tell the chief surgeon about a personal problem and ask for advice.

> The OT is definitely not a silent environment. The colleagues continuously chat with each other: [In a bypass operation] the two chief surgeons at the upper side of the sterile area, the 2 assistants beside the patient’s legs or those in the anesthesia corner chat among themselves, without raising their voices. The chats are just about daily stuff. Sometimes I even hear some obscene talk. These daily chat is sometimes interrupted with talks about the procedures in line or about the patient, then they continue from where they left. But when the chief surgeon (CVS1) and the other surgeon stop talking, at a critical stage of the operation, the others immediately stop speaking without turning

> their heads. This is like an unwritten rule. When the talks or the atmosphere in the OT relax and when they become formal, when to keep silent and when to speak, they all depend on the CVS1. (Field notes, 2011)

The conservations are occasionally interrupted when the surgeon calls for the scalpel, but continue where it is left afterwards. This is also a classroom for on-hands training. The master surgeon shows and explains the intricacies of the procedure to the assistant surgeon. The daily conservations have no priority during the operation; persons do not usually look at each other's face as eyes are always on the job. Considering that some operations could be very tiring, lasting up to 5 or 6 hours or even longer, these sincere and silent small talks serve to diminish the stress. This is a workplace, but a peculiar on where the possibility of death is always present, where a mixture of emotions can be experience; and the novices are supposed to acquire a cold-blooded attitude in time. As can be seen in the quote below, the sincerity and emotional ups and downs is part of the OT for most people:

> Music, jokes, cooking recipes … this is how it is when things are going fine. When something goes worn, then you should see! Everyone gets nervous. Everyone becomes aggressive. You can easily attack. Let's say the nurse gives you an instrument, you may throw it to the wall. You may curse, saying "how can you give this". But we have this for the afterwards: what happens at the operating table stays at the operating table. Once outside you calm down anyone. You go over and excuse, saying "I was wrong". In the past, I might not have done that. But now I can very easily do that. I can apologize to everyone, including the personnel … (CVS1, 46, male, public)

> The master surgeon (CSV1) calls: "Close the lungs for 1 minute ... I am going in". The staff jokes among themselves. Surgeons talk with each other. Anesthetists are talking with each other. (I suspect they are talking about me, as they look at me while talking.) A middle-aged anesthetist is reading a book, while following the chart listing the information and measurements of the patient. At that moment, the CSV1 took out a piece from the heart (I guess it was a vein), showed it to the assistant while swinging it: "Look at that … look how it is" (shakes his head). A second anesthetist has arrived, to take over the shift. The first informs the new comer. (Field notes, 2011)

Time is very important in these spaces. There is always a race against time. The duration of the surgery is recorded and monitored on the digital clock on the wall. The preparation of the instruments, the coming of the patient, the start of the operation, the finishing of the operation and the transfer of the patient are all recorded continuously by the nurses. The amounts of instruments and sponges used are also recorded, also as a precaution against the risk of leaving sponge inside the patient's body.

There is no operation without music. It is an indispensable part of the OT ritual, although it may seem as a source of distraction for the layman. The music is regarded as a source of comfort in this stressful environment. With regard to the types of music played, the surgeon's preferences have priority but anyone in the surgical team may choose. Apart from the genre, loud music are not preferred and never played at high volume. The surgeon may order the music to be stopped when there is something going wrong. So the master surgeon is not only the captain but also the DJ in the OT. They control both the genre and the volume, yet they also respect the preferences of the other members of the team:

> We listen to music inside the OT, we talk, but there is never an exaggerated impertinence there. In there, we do our job as if we are praying, the job will be finished, then there is a period of dead time. The hardest part is over, heart is functioning again, and the operation is over. We may talk about football games, make jokes but there is always music. Always music one the background… (CVS5, 49, male, private)

> Well I used to choose. Now the nurses and others, they choose, they pick light music radio channels. (…) I brought a lot of CDs. Some of them they found classical… The taste of the team is also important after all, not just mine. (ORT1, 48, male, private)

The OTs are intentionally kept cold (Whang, 2010: 21). The temperature in the OT is always, except cases of general surgery, is always around 18 degrees. For a layman or a junior staff, these temperatures may cause sickness. Yet the experienced staff are used to it, it is never a topic of discussion.

As the staffs around the operating table are engaged in stressful tasks, their body temperatures increase. The low temperatures, therefore, both ensure a comfortable work, and prevent drops of sweat falling onto the patient's body which could disrupt the sterilization and be a source of serious infections; yet the major reason is to prevent the reproduction of microbes and bacteria.

A last point that needs to be mentioned is the peculiarity of the language in the OT, similar to its other unfamiliar features. The language of a surgeon is already unfamiliar for the patient at the clinic, but inside the OT the words and phrases exchanged among the staff gives a layperson the feeling of listening to a completely foreign language. In this place, isolated from the outside world, the need for simplifying the medical language is felt even less. So, technical jargon is used

extensively. For the observer in the OT, this language is incomprehensible. In some cases, when warning comes from the surgical staff, some other member of the team repeats, or translates, the warning in a more comprehensible way.

After this summary of observations on the OT as a workplace, the next section will summarize the observations related to the surgical staff working with the surgeons and the division of labor among them.

5.1.2 The Surgical Suit Staff

The life in the operating theatres is based on teamwork. The members of this team are the surgeon, assistant surgeon (or resident surgeon), scrub nurse, anesthesiologists and circulating nurse and technicians. Surgeon is the chief of the team, responsible for a harmonious functioning. Besides, "the surgeon's prime responsibility in the control of infection lies in the area of discipline –his own, and that which he imparts to his support personnel and associates." (Laufman, 1979: 53). The surgeon is also burdened with "legal and ethical responsibility to care of the patients" (Miller, 2004: 61). This responsibility is summarized by a surgeon:

> First, the surgeon is held responsible for everything that happens in the OT by the Turkish law. Even the anesthetist is primarily under the surgeon's responsibility, according to the law. Therefore, the surgeon is really in charge there. (URO3, 59, male, private)

The surgeons usually want to determine how the team is composed, as the harmony among the team is important. Sometimes a surgeon may ask a scrub nurse or the anesthetist whether they will be in the next day's surgical team. They would want to minimize the risk of any personal discords to be reflected on the job performed.

> In the past we could more easily pick the members of the team. Now it's draw of the luck. We used to be pickier, now we cannot be so selective and it's all right. For any person whose chemistry does not fit yours ultimately hates this job, either he runs away or you find someone else. But in general, yes, we choose the core team. (CVS1, 46, male, public)

The lines of the division of labor are clearly drawn in the OT. The tasks and work definition of each OT staff are defined. The following quote is a clear expression of this:

> Everyone does her own job. The patient lies down. The anesthetist finds the vein in the arms, does the injection, and deals only with that arm. After the patient sleeps, follows from the monitor. The surgeon is primary person. The assistant surgeon is the helping one. Sometimes, if it is a big operation, you get a second assistant. There is the OT nurse, just supplies the instruments and devices. There are the personnel, who maintain the device flow in and out of the OT. There is the supervising nurse, who maintains the circulation in the overall OT, not single rooms –in a good OT there are 20-22 tables. Everyone does her own job. The atmosphere is very didactic; no one interferes with the other's job. (GS1, 45, male, private)

Surgery stands out among other branches of the medical professions with its emphasis on hierarchy. This may vary among public and private hospitals, but in general surgery is characterized by a strict system of hierarchy.

> First, there is an enormous hierarchy in the public. It is still that way there, since especially this branch is based on master-apprentice relationship and the scholarship is also subject to serious categorization. Of course, human relations have softened under this heading. There are no longer those department chairs who hold your career at the tip of their lips. Once you accomplish certain things you declare yourself ready as a candidate. The department chair is not the one to consider you fit. In the private sector, of course there is you and people under your command. There is also hierarchy here but not that strict. This is not the army, not the barracks or a training hospital. This is a clinic where the common point is specialization in urology. The *hocam* or *abi* phrases continue to be used of course.[56] (URO3, 53, male, private)

In this division of labor and hierarchy the surgeon occupies the highest point:

> There has got to be a serious hierarchy and division of labor. (…) The command and control is completely with the surgeon conducting the operation here. Now an intricate job is being performed there, the life of the patient is in question. There is no autonomy in the doctor's head but at least in the way it functions at the table, there is a commander so that ambiguous or contradictory situations do not arise. (URO2, 51, male, public)

The surgeon who is at the top of the hierarchy carries the responsibility for all kinds of complications or mishaps related to the operations as well any problems related to

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[56] The term *hocam* means both "my master" and "my professor" in Turkish, and its use is a way of showing respect, but also reflects the hierarchical relationship. *Hocam* denotes a significant difference in terms of both age and experience, and *hoca* is usually a professor. *Abi* literally means "elder brother" and may reflect a more informal attitude. Yet among medical doctors, it is very commonly used and reflects a smaller difference in the hierarchy, but still reflects the importance of hierarchy. Even when there is a few years' difference of age and experience among two doctors, the younger one is supposed to refer to the elder one as *abi*.

the members of the team.

> You may have noticed, there were two novice nurses at the table. Nurses on their day one. We did not break their hearts or raise our voice. The patient we operated was 37 years old. Very bad arteries. Although he was a very intense patient, we have completed the operation in ease, you saw. That ease spreads to the whole team of course. That also affects the success. If I panic, they will also panic. Particularly at moments of panic, I know that I must keep calm and I am the one who tells everyone to calm down. (CVS3, 61, male, private)

Theatre Nurses: Hierarchically both the scrub nurse and the circulating nurse are directly subordinated to the surgeon. The scrub nurse Works directly with the surgeon, in a close division of labor. Scrub nurse is the one responsible for preparing the room and the instruments before the operation, and helping the surgeon during the course of the operation. When the surgeon enters the room, she helps the surgeon put on the sterile clothes and the gloves. During the operation, her task is to deliver the right instruments to the surgeon, quickly and in the right order. In case of mistake, she is warned by the surgeon.

There is a long phase of preparation before the operation starts. Therefore, the scrub nurses have to work for long hours. They work at the OT from the start to the finish of the operations. They count and organize the sponges used, organize which instruments are to be re-sterilized, which are contaminated, which are unsterile, separate them all.

The circulating nurse is a member of the surgical team but stays in the unsterile area. Similar to the scrub nurse, she takes part in the organization of the room before the operation. She maintains the order during the operation. She has a series of duties, including the provision of devices and material, calling for other surgeons from the outside, controlling the compliance with the rules of hygiene.

Anesthetist: There are two medical specialists in the OT: One is the surgeon and the other is the anesthetist. The line of hierarchy is quite blurred. For, in their close interaction with each other, “both have rights to inhabit this space, to regard it as the focus of their work. However, the division of labor and spatial organization within the OT contributes discursively to mark the different responsibilities, interests and

objectives of the two specialisms." (Fox, 1994: 4). There have been a series of studies focusing on this relationship (Fox, 1992, 1994; Goodwin, 2009; Hindmarsh & Pilnick, 2007). There is a more balanced division of labor between the two, as both specialists possess different theoretical and knowledge:

> I am at the top of the hierarchy. But in the intensive care, when there is an anesthetist, I also say what is necessary. But it is more, let's say liberal. We think, argue and decide together … a gentlemanly agreement… The anesthetist is not subordinated to me but is so spiritually. He comes, saying "I want to entube your patient, because of so and so." I reply, "all right, let's do it right now", or "could we wait some more". "Let me think". (…) Things have changed. No more speaking in the imperative mode. (CVS5, 49, male, private)

This is how Fox (1994) describes the surgeon-anesthetist relationship:

> Although surgeons and anesthetists share many positions: both take a biomedical model as the framework for understanding disease, they collaborate clinically and professionally, they may associate within the same collegial structure - from the point of view of the organization of their work. (p. 1)

This is how an orthopedist describes his role in the OT:

> I am at the top. Yes, the captain of the OT, that's how it should be. In the OT there is a captain during the operation, just as there is a captain in every ship. This captain is usually the surgeon. Then with anesthesia … Anesthetist is also pretty much a captain but still surgeon is the chief captain. He carries out in cooperation with the anesthetist. All the other assistants come later, according to the hierarchical order. There is a hierarchy in the OT (ORT3, 54, male, private)

One of the primary indicators of a successful operation is the amount of time the patient remains anesthetized. The motto in surgery is: The lesser the anesthesia, the shorter the operation and the shorter the operation the better.

Neither surgeons, nor the anesthetists can do their job without the other. In this close relationship, both have close observations and considerations about each other. In the quote below, which was recorded during an informal talk with an anesthetist at the course of an operation, the anesthetist comments:

> An [anesthesiology] professor used to say: "Anesthesia is the art of keeping the patient alive despite the surgeon". In fact we anesthetists know, when to make a patient sleeps according to who the surgeon is. (…) I can describe the surgeons as such: They are megalomaniacs; the cardiac surgeons see themselves as God; a good surgeon: If they can decide what to do in the case of an unexpected situation, then they are good surgeons. And the bad surgeon: That is the one who shouts at the people around when things go wrong … losing control … anxious. (Field notes, 2011)

5.2 Skills and Techniques

In accordance with the definition of surgical craft, this section and the subsequent ones detail how each component of surgical craft coincide with the findings of the study. Trends that lead to significant changes in the craft character of surgery, or threaten to erode it, will also be mentioned when relevant. This section, therefore, will review how various features of skills in surgery are reflected in the practice of surgeons in Turkey. The topics covered will include the indivisibility of conception and execution, the role of hands, the significance of tacit knowledge and judgment. Finally, the continuous requirement of skill acquisition in surgery is discussed, a point that underlines the technology-driven character of surgical craft.

Indivisibility of conception and execution: The co-existence of mental and manual labor is the most distinctive feature that makes surgery a craft, giving the surgeon control over the complete process of surgery. Starting with the diagnosis stage, the planning or design of the operation occurs in the surgeon's mind, and this plan is applied throughout the operation by the use of surgeon's hands. This design is, of course, not from scratch, as there are established procedures and guidelines, as well as rules governing the conduct during the operation –standard operating procedures. However, these standards should be revised for each case. There is also the case of contingency during the operation, which requires the surgeon to intervene immediately, decide what to do and apply it. Therefore there is no separation between conception and execution; for both of these processes require the involvement of the surgeon, the surgical skills –both theoretical and practical. The separation of these might even cause serious risks extending to the death of the patient. This whole process is best summarized by a surgeon:

> A surgeon is the one who makes the design, the plan and does the handwork; so speaking in engineering terms, the surgeon is the engineer, the project manager, as well as the technician and the worker of that job. (CVS4, 40, male, private)

The coordination of hand and mind is essential:

> Hand and head will move in harmony. No diagnosis by shooting from the hip [*İşkembeden teşhis koymak yok*]. Your logic will work. Both will work at the same time. (OBG4, 66, male, public)

Most surgeons think that surgery requires mind and hand coordination, but that the operation is conducted basically in the mind. A very experienced general surgeon, GS3 in his mid-70s, emphasizes this by comparing it with mastery in car repair:

> The hands? Surgery is made by mind, not hands. You should know well, where you cut, where you sew ... And it's not only the operating room, pre-operative care, post-operative care, patient follow-up, this is not carpentry or car repair. Because you do car repair but the motor is working. You do it while the motor, the heart of the patient is working. But there you place the car in front of the computer, it tells you: the carburetor is broken, this is broken ... I mean, you need to know, where to change, what to do. Otherwise the patient dies! You do the operation, and take good care after the operation, follow the patient. Besides, you have to be a good person. Like shouting at the patient ...I spit on the face of such a doctor. It's a patient, a human coming to you. This is very important. Whoever comes, a woman, a man, a child, their name is "patient". You should behave accordingly. (GS3, 73, male, private)

Another surgeon compares surgery to other crafts such as carpet weaving, and controversially differentiates surgery from them on the basis of the use of mind:

> Most of the time I use my brain. My mind should bring these together. Hands alone do not mean much. The simple case, they weave carpets. How do they do it? We cannot use our hands at that quality. They repeat the same movements since childhood. I admire them. The masters, for instance, the wood masters ... But there is nothing else in them. So it is not only the hands that matters. Real work is with the mind. Technology, hand, they must be used by the mind. Mind should bring them together. It is the brain that conducts the operation. (NS1, 50, male, private)

As a result, it has been closely observed that surgeons frequently define their job as a craft, and even when they feel it necessary to distinguish their work from that of the crafts, they still emphasize the unity of mental and manual labor in their work.

Making by hand: Meanings of hands in surgery: Making by hand is another defining element of craftwork. Surgeons work by their hands. They use the tools and devices with their hands; their hands are valuable for them. No matter what devices are used in an operation, the surgeon still has to do dozens of suturing, all by hand.

When faced with the question, "what is the meaning of *your hands* for your occupation?" during the interviews, almost all surgeons stopped to look at their hands with admiration or raised their hands and waved them proudly in the air. This was a clear indicator of the significance they attributed to their hands.

Whether the hand skills require a natural inclination or talent, or could be acquired by a good training and extensive practice has been a matter of debate among surgeons for a long time. Many of the surgeons interviewed turned back to their childhood before talking about what their hands meant for surgery. Many of them had experiences of producing some objects, or doing some repair work during their childhood. They noted that they were particularly interested in works like carpentry. Some examples of this are given below:

> In my childhood I liked to make things with my hands. I would put stones together to make a house, a plane. (GS3, 73, male, private)

> Since small age, I was a kid making his own toys, and in high school years I moved to designing electronic circuits and making them myself. Then I started model plane design, the flying aerodynamics of model planes, and stuff like that. (CVS4, 40, male, private)

> I would not say such megalomaniac things like my hands are very talented. I am doing my job. Yes, in a sense, some kind of repair, yes I remember a few things from childhood. Yes. I remember they were saying talented, and else but that is about handicraft. Can we reflect that to our occupation today? In fact we can. And there are quite a lot of artists, carpenters, etc. among the doctors. Among people that are able to solve problems, change things by manipulation, it is more possible for good surgeons to emerge. (OBG5, 49, male, private)

An interesting example is a brain surgeon who attempted at bigger scale carpentry, like making a wooden door, in his childhood, presenting a case of dexterity that emerged in childhood:

> I was keen on carpentry as a child. You will ask what sort of an interest. I discovered that myself. I said I do this. I made the door to the house my father bought. (...) We are a public servant's family. A new house was bought and the door needs to be changed. I said "I can do it". I was in secondary school then. How to do, find some wood, nailing sheet metal on it, and so on... In the end that door was interesting as the house was sold, there were people living there. When I go there, I see that the door is still standing. What I mean is of course one feels it. Besides, when there is something to be repaired in the house, like a chair or couch, I used to do it myself although I don't have to. I always had equipment ready for that. Like, from saws to adz, or pincers. (NS2, 66, male, private)

The intensity of the physical effort spent throughout the work day, especially by the hands, is a common condition for surgeons. An operation may last for several hours. After finishing an operation that lasted 7 hours, a cardiovascular surgeon tells that it is not his feet or back, but hands that were most tired:

> Of course. When I come out of heart transplant surgery, my hands ache. Especially when I made a total artificial heart transplant, my hands ached for two days, I had to take painkillers. I cannot even count the sutures I made. Probably around two thousand. (CVS5, 49, male, private)

The significance of the dexterity of hands makes physical details regarding a surgeon's hand also important. For instance, while describing how he changed the disadvantage of having small hands into an advantage, URO3 also presents an indication of the indivisibility of conception and execution:

> Hands are precious of course. I am a man with small fingers. But the surgeons are expected to have longer fingers. But the advantage of small hands is that they can move better. Hands are important if you ask me, they are the extension of your brain. (URO3, 53, male, private)

For a surgeon, explaining the significance of hands may turn into a long philosophical conversation. Obviously, many surgeons have given great thought on this matter. Both during the interviews, and in most of the operations observed, they tended to talk in length about their hands, without waiting to be asked about it. Each expressed this differently, but the common view is that hands are important in the conduct of the work. No surgeon, however, thinks hands are all that is necessary. For NS4, moreover, surgery is only "half" of the work. The following statements are from different surgeons on the use of hands:

> Everything. Let's say half, we also need to see. Hand-eye coordination is a must. (NS4, 55, female, private)
>
> My hands are the most important organ that helps me thrive. (CVS4, 40, male, private)
>
> Hands ... An instrument for touching things, right? (OBG5, 49, male, private)
>
> In the operations my hands are very polite, delicate, orderly, and I believe I use them according to the medical doctrine. There is not even the smallest lapse, in using the scissor for instance, the smallest swing outside my command or any harsh movement. I have very polite and delicate hands. (URO2, 51, male, public)
>
> It is 3 a.m., in this interview conducted with a junior gynecologist, at the floor of the delivery room, with the sounds of women laboring, very close to birth, and naturally

> screaming. The interview is frequently interrupted. The doctor leaves to check for the women, and comes back. Therefore it already passed 3 hours. When asked about his hands, he answers: "My hand and my throat are the same. Something happening to our hands is no different than something happening to our eyes or our artery. Because guaranteeing our life, I mean, I have only this, my hand, it is indispensable to continue my existence. There are people with problems in the legs, or have problem with their backs. There are those who cannot see well. Those can operate too but when you have a problem with your hand, you are idle. (...) It is the end of life, that is. ... You see that door; a surgeon may have his head squeezed through that door, but would never let his hand get squeezed. It is vital for us". (Field notes, 2012)

As they are extremely concerned about their hands, surgeons tend to use them as minimally as possible when they are not working. An injury to their hands is a nightmare for them, as reflected in the following statements:

> If I lose my hand, may God forbid, what am I good for? What can a single-handed surgeon do? (CVS1, 46, male, public)

> My hands are my brain. My everything. I mean my hands are my brain. I used to use them harshly. Now I definitely care for them. Always ... Of course, I always use it, every evening. I definitely use it after surgery actually, but I haven't today. Would you care if I apply some cream now? (CVS5, 49, male, private)

> I don't open cans, use pocket knife, use knife or carry any heavy package. Our hands are everything to us. Once, I head nightmare because my wrist ached. There was a slight arthrosis, occupational. So I had nightmares because my wrist ached. Physical therapies, this and that, massages... Of course eyes are important too. Sometimes I see hazy when I wake up, and I panic. What is happening, why do I see hazy. (CVS3, 61, male, private)

Work accidents are also a part of a surgeon's craft, as they use extremely sharp devices. The scalpel, for instance, a standard instrument, is very thin and sharp making it easy to injure one's hand with it. In orthopedics, a specialty that particularly requires physical strength, the risk of injury can be higher. ORT2, for instance, told that he had many accidents throughout his career:

> Always the left hand is injured. Always the left hand. It is the same with the carpenters. Always the left hand. This finger of mine is numb. It doesn't feel. In an operation, the whole finger was smashed, the device was broken, and entered my hand. Hand surgeons operated on my hand for 3 hours. They fixed the veins but the nerves did not work. ... Another day in an operation, the drill entered from here, coming out here [he is describing with his hand and showing the scar]. In another operation, the scalpel entered here cutting the artery. My blood spurted to the ceiling. (...) A nurse with years of experience fainted! Can you imagine? ... That is how orthopedics is, very tough. (ORT2, 65, male, private)

Surgeons in various specialties have transformed their talents that they realized in childhood into the hand skills of a surgeon. This centrality of hand is a further indication of the craft character of surgery.

Tacit knowledge: Surgical training lasts for long years. Formal theoretical education is combined with practical knowledge based on years of practice for the transmission of the tacit knowledge. This is a knowledge that cannot be transmitted easily in words. That is, despite the extensive planning of all phases of surgery, at various points surgeons should perform various movements, some of them spontaneous or contingent, that they "somehow" know how to perform. But when asked to describe in words, in most cases they could not do it. This is how NS2 found the right spot to stop the bleeding while turning his hand around:

> This is what we call *sense clinique* ... Everywhere is covered with blood ... You cannot see anything. While groping with my hand, suddenly I pressed some spot. That feeling, that thing, there is no clear definition of it. The bleeding stopped, my hand there. (NS2, 66, male, private)

A further example can be given from a by-pass surgery that was observed during the field study:

> Towards the end of the operation, after four of his veins were changed, the patient's heart was slowly separated from the heart-lung machine. The heart is now supposed to work on its own, with the newly changed veins. The master surgeon handled the heart gently, stroke a few times and the heart started to beat. It was working. Master surgeon told the assistant surgeon: "you will release it slowly from the machine. You will take it in your hand like this, touch it, feel it, then you will see it works." (Field notes, 2013)

Judgment: As previously defined in section 2.2.3, judgment is an essential skill for craftwork, and especially for the surgical craft. Evaluating the patient's condition, deciding whether an operation is necessary, carrying out the operation and following up the patient after the operation, all these phases require the surgeon's judgment. One urologist describes surgical judgment as such:

> For me, it is knowing well who to operate. The decision, that is. Good surgery begins with the decision, ends with the decision. If your decision is correct, if you are doing the right operation, for the right reason, and with the right technique, you will never be defeated. Bu if you fail in one of the three, if you did not decide correct and use the right technique, you will certainly make a mistake at some point. (URO3, 53, male, private)

This process of decision is repeated every day, for every patient; therefore, the acquisition of this judgment is crucial in a surgeon's training:

> We are training persons that do not panic in times of difficulty, can decide, and does not let his decisions to be questioned. Because if the decision you make begins to be questioned –by other doctors, by assistant surgeons- indecision is worse; any decision is better than indecision. Otherwise, it results in the patient's death. We train persons who are not used to see their decision be questioned. (GS2, 44, male, public)

The vitality of judgment in reaching a decision is also underlined by NS3. This also includes readiness for contingencies, and requires the surgeon to have planned extensively before the operation:

> I have known very good surgeons who cannot decide. Maybe they have the best hands in the world. Yet they are unsuccessful surgeons. There comes a point when you need to make a move. Instead you linger on in the same place for hours. I mean, you have to make a decision. And you need to do it beforehand, you should specify a strategy. According to this strategy, you should be operating by knowing what comes a few moves later. Because, in our job a disaster may happen when everything is going all right. Something starts to bleed and everything changes at that moment. You cannot see anything. Because neurosurgery is conducted through a small opening. And when it is covered with blood ... You should predict this may happen, where it may happen. (NS3, 52, male, private)

New skill acquisition: The increasing intensity of technology and the increasing pace of innovations compel surgeons to continuously strive to catch up with these. In many cases this means the acquisition of significantly different skills. As a technology-driven craft, therefore, the introduction and diffusion of new technologies in surgery, the market pressure related to the use of technology or the demand from the patients are the factors that impact upon the skill requirements in surgical craft. There are various ways for such skill acquisition, including attendance at training courses and congresses at national and international scale, or attend hospitals or institutions abroad as *observers*. These trainings and practices should be certified by the relevant authorities, and with a certain level of practice they become acquired skills. A good example of new skill acquisition that affected a majority of surgeons is the recent diffusion of laparoscopic and robotic surgery, as accounted by an urologist:

> In recent times, laparoscopic and robotic surgery compelled every surgeon enormously and people at every age group had to learn laparoscopy. (URO3, 53, male, private)

A similar example is presented by another urologist. URO1 gives the following description on the introduction of a technological device and how he started to use it as a surgeon:

> Acquiring new skills, you see the innovations in the congresses. You do research in order to adapt to it. You can find who is good at it. In the end, you go to someone who is good at it. The innovators offer courses. In these congresses, there are expert courses in the morning, you attend them. Or you go where that person is and work directly with that person. You become an observer. (URO1, 47, male, public)

They also need to update their theoretical knowledge continuously, for which the international conferences and meetings are particularly functional. CVS4 stresses the importance of following the literature in addition to attending international meetings:

> One needs to closely follow international meetings, follow the documents. Scientific journals, organized activities must be followed. Let's say, an echocardiography course or something more specific under it. (CVS4, 40, male, private)

The courses and simulation trainings offered by surgical associations organized in specialties, or by the ministry or ministerial departments, play a significant role in this process. NS3 underlines the importance of such courses for those skills that were not included in the formal education and training:

> Let us say the endoscopy technique. This is something we were not familiar with, that was not a part of our education. If you want to do such a thing, you first go to the courses. First oral, then you work on the cadavers, be trained by people who know it. Then you slowly start applying it. There are courses in both [Turkey and abroad], but the ones abroad are better. (NS3, 52, male, private)

As can be noticed in the excerpts above, apprenticeship method, working with a master that has the know-how, is the most effective method of acquiring skills. This is again a manifestation of the craft character of surgery. URO2 describes this process with reference to the conventional medical education:

> In fact, it is the master-apprentice method conventionally. That is the best. That you stand next to someone who knows, watching and observing, then assisting, and in the end practicing under his supervision. So it has three stages. The fourth is when you do it on your own, and by then it is finished. This is the healthiest method. ... But this is becoming rare. Because those masters are gone now. Due to the transformation in health [program] these masters cannot be found; I am here today, tomorrow I am gone. (URO2, 51, male, public)

Still, it should not be neglected that skills are acquired through long years of labor. This is how a cardiovascular surgeon describes this labor:

> It is completely a matter of labor. Completely a matter of labor, of making it a purpose, of course the best chance for young surgeons is to work at a good center. If there are 30 operations per month in your center, then you are lucky. But if there are only 5 operations each month, you have no chance even if you have the talent. Therefore, surgeons working at centers where there are numerous operations can improve themselves even if they are less talented. A very talented surgeon can be wasted in a place where there are few operations. I know many examples of it.
>
> (…)
>
> It is all labor, all a matter of labor. You will spend time, work. As I said, it takes 15 years for a surgeon to become a good surgeon." (CVS3, 61, male, private)

It is also argued sometimes that skill acquisition may start in childhood. With regard to adaptability to new technologies, the devices and technologies already existing and used in childhood may provide advantages in adulthood, as will be discussed in more detail in section 6.3. The following excerpt from the interview with NS3 exemplifies this with reference to computer games:

> You said skill … Let's say a 10 year old kid now, when he grows up and starts doing endoscopy, he will do it much better than me, because these computer games, playstations, Wii games, etc. are also virtual stuff. They start developing the hand-eye coordination as a child. That is, working while looking somewhere else, not at your hand. (...) So you can give this education with the microscope. So easy ... Let the kid sew something under the microscope, a kid at 15 years of age. Let him learn working his hands under the microscope, cutting fruits under the microscope. (...) Of course. You can't be a virtuoso pianist starting at 24. Even 10 is old they say. (NS3, 52, male, private)

Education process is the most important phase in skill acquisition for a surgeon. With the new technologies, however, the education process is also affected and the time required for skill acquisition becomes shorter. This may also affect the master-apprentice relationship, as accounted by an orthopedist:

> The changes in skills, I used to say 3-5 years previously. That is becoming shortened now. In short, if the master is not updated, the apprentice can quickly surpass him. That is the change. So it is effectively possible for the apprentice to go in other directions and surpass the master. (ORT3, 54, male, private)

As summarized throughout the section, the surgical craft manifests all the components gathered under the heading "skills and techniques". Particularly the combination of conception and execution in the surgeon's work, the development of

a tacit knowledge through practice, as well as the centrality of working by hand definitely qualify surgery as a craft. A particularly specific and significant characteristic of surgical craft, in terms of skill acquisition, is that surgeons are compelled to continue acquiring new skills throughout their career. Technological change is the driving source in this, either extending the range of skills required or rendering some skills obsolete and replacing them with new ones. Therefore, a continuous process of skill acquisition is increasingly defining the surgical craft, and causing profound changes in some of its components. This, in turn, was one of the reasons that surgical craft was defined as a "technology-driven craft" in the second chapter of this study. The chapters 6 and 7 will provide further details on this particular interaction between surgical craft and technology, connecting it also with prevalent social processes.

5.3 Master-Apprentice Relationship

For prospective surgeons freshly out of medical school, training starts with the fundamentals such as learning how to hold the scalpel. The assistant starts as a watcher, observing the hands of senior surgeons, the *good hands* of a masterful surgeon if they are lucky; in the next step starts assisting the operation, doing minor tasks; the third step is when the assistant surgeons can conduct operations under the supervision of a senior surgeon. When these three stages are successfully completed, the assistant surgeon becomes a surgeon licensed to operate alone. The whole process of apprenticeship, therefore, requires guidance by skilled masters. Thus, it includes a master-apprentice relationship similar to other crafts, a relationship that is based on a strict hierarchy. In any case, the daily practice of surgery is defined by hierarchy, since there are strict rules of conduct, a clear division of labor, and a strong authority of the senior surgeon.

Becoming a licensed surgeon, on the other hand, should be considered as another beginning. Through years of practice, the surgeon will reach higher levels of skills

that define mastery. The level of mastery, however, requires the development of a complete craftsperson with the proper skills, habits, character and attitudes.

Given the substantial amount of effort surgery requires, in terms of long training, long working hours, stressful and demanding working conditions, commitment also appears as a significant feature of a craftsperson. Therefore, surgeons always emphasize their close connection with their job, their level of commitment to it, in some cases even defining it with words like “love”.

Training young surgeons: Masters and apprentices: Mastery in surgery requires the togetherness of theoretical and practical knowledge, which in turn translates into a long period of apprenticeship. This is how a cardiovascular surgeon recalls his apprenticeship:

> I did not learn only the use of fingers in the operation from my master. I did not just learn how to tie a knot, or how to replace a vein. I learned how to look at a patient, how to consider the patient as a complete photo, and I think this is very important in heart surgery. I mean you need to have a clear view of the photo. (CVS5, 49, male, private)

An orthopedist, on the other hand, highlights the significance of watching a master’s hands, in comparison to reading the lines of a book:

> Definitely, 100% there is a master-apprentice relationship. In orthopedics in particular ... To be a very good orthopedist, for instance, an assistant should continuously work with me, must see me, must watch what I do in the operations. You cannot obtain it by reading. Read as much as you want. (ORT2, 65, male, private)

It is quite common that surgeons compare their work with other surgical and medical specialties. In each comparison, perhaps naturally, the specialty of the person doing the comparison acquires superior qualities: More complex, requiring more training, more essential or more burdensome. The following is an example in which a cardiovascular surgeon emphasizes the significance of master-apprentice relationship in surgery, and particularly in cardiovascular surgery:

> In heart surgery, master-apprentice relationship extends into long years. For an orthopedist, a laryngologist or a general surgeon, unless one heads toward a very specific branch, that master – apprentice relationship finishes when the residency ends, and individual work begins. But in our case, workers become more like a family. As we work as a team, and since the work performed is hard, so the training takes long years,

> that is reaching the level of a master takes longer compared to other branches. (CVS4, 40 male, private)

The apprenticeship is also a process strictly based on *mimicry*. An apprentice is supposed to imitate whatever and however the master or senior surgeons perform, in every task and procedure:

> You will never comprise your seriousness. An in surgery there is no place for attractions. You learn it through time. For instance, in the suture the strip stays here, right? So it should stay there. If the one before you is putting it there, then there is a reason, a logic for that. In years, you may get used to put it somewhere else, but then it must always be put there. (CVS1, 46, male, public)

Even the stage of watching and observing is divided into further stages. A general surgeon offers a comprehensive summary of the subsequent stages in apprenticeship:

> This is the same in master-apprentice: 1- watching 2- going in together but not doing 3- doing it under the supervision of the master 4- master goes out, watching you outside 5- you do it on your own, you call the master in complicated cases. So there is a five-step master-apprentice relationship. ... The same is true for the shoe polisher. (GS1, 45, male, private)

Some surgeons, on the other hand, believe that apprenticeship should begin earlier. According to NS3, for instance, medical school is too late for a surgeon apprentice to acquire the basic skills:

> This is completely a master-apprentice work. That is how it is learned. You need to go through apprenticeship. But I think it should also change. I mean one should start earlier learning the work I am doing. Not after finishing the whole medical school, but earlier, in high school years, if the student has the inclination, by designing computer games and like that. (NS3, 52, male, private)

One of the interviewees offers a more specific definition for mastery, which requires not only the skills but also an accumulation of years of experience:

> 15 years should pass for mastery. 5000 operations should be performed. There is no such thing as I did ten operations, I am good. We tell our assistants to go and watch, be there and behave yourself. In time you will improve anyhow. Do not undertake big operations, it is bad for the patient, bad for you. This is a process. (URO1, 47, male, public)

Hierarchy: Hierarchy is a defining feature of the daily practice of surgery. The master-apprentice relationship is the most significant manifestation of the hierarchical organization of surgery. The natural strictness of the rules of conduct, the clear division of labor in every step and task, and the strong authority of the

senior surgeons constitute significant markers of this hierarchy. Very similar to the hierarchy in the military, as some surgeons note, even a few years of age difference places two persons in different categories. A urologist agrees with this point:

> We have a military system, a system of seniority. There is *hoca*, *şef muavini*, *baş asistan*, *asistan*, and so it goes.[57] (URO1, 47, male, public)

This hierarchy is also a point that differentiates surgery from the internal branches like dermatology:

> Because there one may read and learn ... but cannot learn our operations. With us, it is like a machine shop, one must see and practice. (URO1, 47, male, public)

While describing this hierarchy, surgeons usually prefer to describe it as necessity, and as something that pleases everyone, rather than as a form of subordination. This can be observed in a neurosurgeon's haste to express why hierarchy is necessary:

> But this hierarchy, it is not in the sense of misbehaving or crushing people subordinate to us. But in our job, there is a single person in the position of deciding and whatever he says must be done. You can question it later, after when it is done. At that moment, however, whatever he says must be done. (NS3, 52, male, private)

Similarly, a young cardiovascular surgeon speaks of both the necessity and benefits of hierarchy, associating surgery with autocracy, not suitable for democracy:

> Of course there is a hierarchy among us, but this hierarchy is completely oriented to the smooth functioning of things and to use time efficiently so as to get results. We have a hierarchy in which everyone is pleased, everyone is happy with the working conditions. In any case, this hierarchy is necessary in surgical branches. Because in surgery autocracy rules. There is no such thing as democracy. Of course we reach consensus, in many issues, at the serious stage, deciding on operation for a patient. We never move with the decision of a single person. (CVS4, 40, male, private)

It should be noted, about the previous excerpt, that CVS4 describes a particular case which cannot be easily generalized to all types of surgical practice in Turkey. CVS4 is the youngest surgeon in a close-knit team of heart surgeons working at a highly prestigious private hospital. The senior surgeons he is working with are well-reputed nationally, and the whole team is working in good conditions, well-paid and high

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[57] *Hoca* means "master", the most senior surgeon and usually a professor; *şef muavini* is the vice director of the unit; *baş asistan* is the chief assistant meaning the most senior among the assistants or interns; and *asistan* is used for interns who are being trained to become surgeons.

surgical volume. It is frequently stated by surgeons working in private hospitals that the traditional hierarchy associated with surgery does not continue in their institutions, and is mostly limited to university hospitals. Even in these places, the classical surgical hierarchy is being shaken, a point that is commonly made. While this erosion of traditional hierarchy can be attributed in part to the changing social values and the diffusion of market mentality, technological changes also play a part here. Particularly as the younger generations are better than their masters, at some points, in adapting to new technologies, the authority of the masters is weakened. This change in the hierarchy dimension will be further elaborated in Chapter 6, where the effects of recent technological developments on the surgical craft will be analyzed in detail.

Commitment: Given the substantial amount of effort surgery requires, in terms of long training, long working hours, stressful and demanding working conditions, commitment also appears as a significant feature of a craftsperson. Therefore, surgeons always emphasize their close connection with their job, their level of commitment to it, in some cases even defining it with words like "love". This may also be regarded as part of the "heroic image" that is constructed around the surgery, especially by the surgeons themselves, as discussed in the ethnographical works on surgeons (Cassell, 1991; Fox, 1992).

This aspect of surgery finds a striking expression in the words of a heart surgeon, who draws a parallel between the master-apprentice relationship and the dervish tradition:

> *O kapıya kul olmadan, o dergâha odun taşımadan kimseye ne dervişlik veriliyor ne sanat veriliyor.*[58] (CVS3, 61, male, private)

[58] The sentence can be roughly translated as: "No one can be granted an art or the status of a dervish without serving with complete obedience or carrying wood to the convent". The surgeon refers to the Sufi tradition, comparing surgical apprenticeship to the process of becoming a dervish.

This reference to dervishes is a clear expression of the level of commitment deemed necessary for the job. According to another heart surgeon, furthermore, this devotion should take the form of *love*:

> You need to love this work, you should be in love with it. And this love does not erode, its chemistry does not weaken, so it seems. Each day it is so. I see it like this: Doctor Quill once said: "In opening each heart, each chest I feel like I am opening the doors of heaven." Indeed, in every heart we open, we feel the same. (CVS5, 49, male, private)

This commitment, on the other hand, comes with a price. As reflected in the excerpts from interviews listed below, one surgeon (CVS4) complains about being limited in making plans for leisure time, while the others mention how their family lives are affected (ORT2), or the obligation not to let ups and down in personal life affect the work routine (ORT4).

> The point I complain most ... the distinguishing point [...]: You have no chance to make plans in your life ... because I may have to be at the hospital in 15 minutes wherever in the city I am at that moment. (CVS4, 40, male, private)

> Your family life is affected, everything is affected. (ORT2, 65, male, private)

> Being a doctor is being always very kind and continuously kind to patients. So we cannot frown, for instance my kids did not let me sleep the night before but I have to do my normal duty. This does not matter for anyone, but the sickness of the patient matters. She deserves care, but the doctor does not deserve. (ORT4, 45, male, private)

The fatigue and stress sometimes become so heavy that a surgeon wishes to exchange his commitment with a simpler job, while this may also be read as a form of self-glorification:

> Sometimes I tell my parents, why you sent me to school. Why not gave me a lemon stand or something at 18. I could start with a case of lemons. I have many friends in my generation. They did not choose medicine, but you know many people going to Peru for a holiday during the feasts. I instead worked with those who cut their hands while slaughtering the sacrifice. (ORT4, 45, male, private)

It is a neurosurgeon who offers the most striking depiction of commitment in surgery. He states that what he does is not a job but a hobby:

> This is not a job, let's call it hobby. Some collect stamps or paints. Some makes music. This is my life at the moment. It is beyond addiction. When I leave work, I go home and continue working. While the TV is open in a corner, the kid playing and I somehow deal with him, I also work on the speech I will make, the articles I will write, or the results of our research, I deal with that kind of stuff. There is no occupation like this. (NS1, 50, male, private)

The way the neurosurgeon cited above associates surgery with hobby, or a lifestyle is in parallel with the understanding of craftsmanship as part of a search for self-realization. All the surgeons interviewed mentioned that their job requires a high level of commitment, given the long years of education and training, the hard work required and the stress and risks that need to be faced. To summarize, for all surgeons, apprenticeship is a necessary and useful model of training, and both apprenticeship and mastery require long years of hard work. So, the qualification of surgery as a "heroic" work, where surgeon is dealing with extraordinary hardships that outsiders do not, in order to heal and save lives, is a discourse that all surgeons happily embrace.

5.4 Output

Each craft is distinguished according to its output. In the case of the surgical craft, therefore, the definition of its output is crucial in defining its essence. What surgeons do is, of course, *operation*, that is intervention into the patient's body in a specific way. While operation is a defining task of surgery, it is also a part of the more general process of *treatment*. The surgeons emphasize that their work also includes the steps of pre-operative tasks (examination, diagnosis and the decision to operate, preparation of the patient for operation) and post-operative tasks (intensive care, ending the treatment and follow-up examinations). The ultimate objective of this process of treatment, on the other hand, is *healing*, *health* or *well-being* of the patient. In the ideal sense, surgeon aims at healing the patient in its broadest sense, or in the words of a surgeon:

> My job is to perform modern science of medicine, to apply technology in order to help people recover and become healthy. (URO1, 47, male, public)

The concepts of healing, health or well-being, however, are not easy to define. They are complex concepts, and are open to interpretation. Processes such as specialization within surgery, the commodification of health services, or the changing conceptions of health, moreover, impact upon how the work and objective of surgery is to be

defined. Technological changes, furthermore, play a significant role in all these processes, so they are closely related with the conception of health.

Mending or healing?

> Technology or else, patients do not ever care. All they want is to go home safe and well. That is so in the end, but they trust you. (CVS1, 46, male, public)

> The coming woman, man, child, their name is "patient". You have to behave them accordingly. (GS3, 73, male, private)

Why does a patient go to a surgeon? In order to gain health, to be treated. That is why the surgeon cited above defines whoever applies to him as "patient". The increasing intensity of technology in surgery, however, caused significant changes in the way surgery is performed. As the body is increasingly divided into smaller pieces for specialized treatments, a shift could be anticipated from an understanding based on the general *healing* of the patient to a narrower conception based on *mending* the broken parts. Indeed, such an opposition between narrower and broader conceptions of the surgical work tended to emerge among the accounts given by different surgeons in the field study.

A broader conception of healing, whereby the task of the surgeon is defined in more altruistic terms can be found in one urologist's objective to ease patient's pains:

> I try to ease people's pains and troubles. Those conditions we call disease that are related to their health, that haunt them but which they have difficulty in comprehending, in a way that they can understand, I see my difference from the others here. If there will be difference, it should be here. With your exposition, your empathy, your altruism, I try to make the trouble of that troubled person tolerable. (...) After that, with the means that medicine provides us, within that framework, of course within the limits of my knowledge and capability, either by medication, some measures, or by the knife I try to fix them. (URO2, 51, male, public)

Some surgeons, on the other hand, either due to the specific character of their specialty or as a consequence of intensified use of technology, tended to describe their work in more technical and narrower terms. For instance, the cardiovascular surgeon cited below draw a parallel between by-pass surgery and plumbing work:

> What we do is no different than plumbing, theoretically. Theoretically speaking, what I do is, you also get sinks congested, or stitch the pipes. We also stitch pipes.

> Theoretically that is what it is. Our only difference, as we do it on human body, can I make it clear? (...) I am just like a plumber. (CVS1, 46, male, public)

The technology-driven character of the surgical craft is reflected in the parallel that another cardiovascular surgeon draws between heart surgery and engineering:

> What I do is in fact engineering. Doing this work, doing heart surgery is completely engineering. (...) All the steps that lead to production, but specific to each patient, are valid for our occupation too. I mean every operation is a design and production that is made through the necessary technician work. (CVS4, 40, male, private)

For another surgeon, who also defines his work as mending, this is also what differentiates surgery from arts and crafts:

> Artist is creative, creates something new. But I do what is defined for me. For instance, a carpenter is very talented in making a wheel, makes it very good, the other is not talented, so makes it bad. ... But what is our difference from crafts: We do not have spare parts. We have only one chance, one shot. You mend something broken and it is never as it was before. Maybe 70 % but never 100 % as it was. (GS2, 44, male, public)

The change in how surgeons conceive the output of their work, from healing to mending, is a crucial change since it also implies a change in the relationship between the surgeon and the patient as well as surgeon's interaction with technology. Particularly the trend towards sub-specialization, whereby surgeons tend to specialize in narrower fields or organs of the body, is a major cause of this change as observed frequently throughout the field study. In the Chapter 6 devoted to the effects of technological change, how new advanced medical technologies promote a view of treatment as mending and its implications for the dimensions of skills and output will be elaborated in section 6.2. The section 7.3 focusing on the changing attitudes and expectations of patients is also related in this context.

Efficiency or quality: Craftwork is always associated with high-quality work, as its output is unique, hand-made and requiring mastery. Industrial production, on the other hand, is about volume, productivity and efficiency. Therefore a certain contradiction between efficiency and quality may be said to exist in any kind of craftwork. Given that surgery is about human life, a strong emphasis on quality becomes indispensable. Apart from the technical complexities involved, this aspect can be considered as a major reason for the continuing craft character of surgery. It needs to be carefully planned and designed, and conducted by one or a few persons

equipped with a complex set of skills. However, it is also a service produced, in which the costs as well as other aspects of efficiency should be taken into consideration. The increasing prevalence of market mentality in health sector and the intensification of technology may be expected to place more emphasis on the topic of efficiency.

With regard to the accounts given by surgeons, this quality aspect, the necessity of performing best is emphasized by all surgeons. As an illustrative example, it would be meaningful to cite how a neurosurgeon defines this aspect, since this branch deals with severe and risky cases:

> Neurosurgery is a field in which you wander among death-life-disability. In brain surgery there is a judgment aspect beyond conducting the operation. That is, at a point in the operation you make a decision, and that decision is about the life of that person. So you take a certain risk, therefore it is a tough work, taking the responsibility of a person's life. And if you are doing such a work, then you have to do it good. If you are not doing it good, it is like murder. You need to be good. What does being good mean? There is no measurement for that. The patient is the measurement. They come to you, entrust themselves to you, this performance, how many operations you did, these cannot be a measure. This work cannot be measured that way. (NS3, 52, male, private)

To conclude, surgery essentially aims at the well-being of the patients. Efficiency understood simply as an increase in the number of operations per day does not necessarily mean better performance; on the contrary this may also lead to a decrease in the quality of service offered to the patients. Therefore, as will be discussed in Chapter 7, the performance-based evaluation systems introduced as part of the transformation program in healthcare are criticized for being inappropriate in assessing surgical treatments, and creating incentives for less risky, easier and more income raising procedures to be preferred by the surgeons.

Peer-evaluation: Crafts are performed within a craft community, and the best assessment of craftwork can be made again by other craftspersons. In a field as complex as surgery, the ability of outsiders to provide sound assessments of the skills and outputs of surgeons is much more difficult. Even in the case of negative outcomes, such as death or disability, which may clearly appear as a failure, it is difficult for lay persons to grasp the details of the case, and detect the shortcomings or faults of a surgeon. For other surgeons, on the contrary, it may be quite easy to

assess the skills and works of another surgeon; in fact, this is something they frequently do in various positions. Therefore, peer-evaluation is an essential part of surgical craft. Whether a surgeon has *good hands* or not, therefore, can be best answered by peer surgeons:

> It is enough for a surgeon to watch another surgeon for 5 minutes, to understand whether he has the skill or not. It can be understood immediately. ... with skilled hands, processes do not go step-by-step, they manifest a continuity. You need to see that continuity. ... It is like the flow of water. In fine details, there is the fineness of the hand, the maneuvers of the hand. (GS1, 45, male, private)

5.5 Autonomy

Autonomy is a major concept that frequently emerges in discussions on medical profession in general. The autonomy of a physician is perhaps the strongest, however, when that physician is a surgeon in the operating room. The defining characteristics of surgical craft create a relatively large area of autonomy for surgery. Particularly the essential role of the surgeon's judgmental skills defines the extensive limits of surgical autonomy, while the master-apprentice relationship is another factor. Particularly within the operating room, the autonomy of the surgeon is most visible. In the operating room, the other staff, the assistant surgeons, nurses and technicians, are all subordinates of the surgeon, with the exception of the anesthesiologist, who is also a specialist. In the popular image, similarly, the operating rooms are associated with the surgeons.

A major source of the surgeon's autonomy is the level of mastery, which derives from the tacit skills as well as from the extensive theoretical knowledge of a senior surgeon. As a characteristic of craftwork, autonomy increases in proportion to the level of mastery. In the case of surgeons, mastery is a result of thousands of operations practiced, and numerous young surgeons trained. For an experienced heart surgeon, autonomy means simply being at the top of the pyramid:

> In order to feel autonomous in surgery, you need to be number one. That is, the discipline of a surgical team, everything depends on following the master in every step. That is, whatever I do, those below me also do the same. The technician colleague there

> must do everything as I want. This is the rule of the whole world. If the chief is good, so is the team. If the chief is clumsy, then the whole team becomes clumsy. Because that is the rule: Whatever I do, the man behind me and all the others behind must do the same. (CVS3, 61, male, private)

Other surgeons similarly define autonomy as being unquestionable:

> I am a brain surgeon. I am a physician for 25 years. Probably I have made around 2000 or 2500 operations. I have always been autonomous. I always have gone my own way, everywhere. I mean I feel myself autonomous, in performing my job there has been no interference, imposing to do like this or that, and there cannot be. (NS4, 55, female, private)

> I am autonomous and I am quite assertively autonomous. It is very rare that I ask the opinion of someone else. In my field, I am at a very assertive position. (ORT2, 65, male, private)

It can be considered as uncontroversial for the surgeons to have extensive autonomy while they are doing their work in the operating room, where the life and well-being of the patient depends on the judgment and skill of the surgeon. Outside the operating room, however, surgeons share authority with others. So, apart from the autonomy at work, the autonomy of the surgeons can be considered to exist in relation with the organization they are working in, and with the patients who are their clients. In none of these aspects can the surgeon's autonomy be unlimited. In terms of sources of surgical autonomy, the craft community that the surgeon is a part of should also be emphasized.

Autonomy from organization: One particular source of limitation on surgical autonomy derives from the bureaucratic structure of the health organization and the legal and other regulations that define the duties and responsibilities of the surgeon. In the public health sector, the most direct and significant bureaucratic mechanism is the system of chiefs in surgical departments. Within this system all decisions, all actions of the surgeon need to be sanctioned by the departmental chief:

> In the public, there are these chiefs. Now they reduced it a bit. Chief is like God. You don't do what the chief said not to, you do what the chief said to do and you are not free there. For instance, the chief does not assign any operation day, writing all the operation days alone. You have to obtain the chief's approval. (ORT4, 45, male, private)

> In all my life, I tried to be as autonomous as possible, but it is quite difficult in Turkey. Especially if you are working at a public institution, there are definitely certain sanctions, some sort of things. (NS2, 66, male, private)

Surgeons who have moved from the public sector to the private are able to compare the two. As expressed by the surgeon cited below, a surgeon may believe to have more autonomy in the private sector:

> I used to work at the state, after that I feel very autonomous right now. I mean I can do what I want. I did not feel autonomous when working at the state. [Now] I am my own boss. I mean, I can go on vacation any time I want. I don't have to get permission from anyone and my responsibilities are greater. I don't need to ask for permission, but of course you cannot just leave the patients and go. (ORT3, 54, male, private)

Another surgeon who is working more independently, in the form of solo-practice, offers a different view on this private-public comparison:

> When working in public, I did not feel autonomous. You cannot feel much autonomous at the private hospital either. There, you work today, but cannot know where you will be tomorrow. This is such a harsh setting. (GS4, 51, male, private)

The surgeon cited below, in contrast, argues to be autonomous while working at a public hospital:

> While performing my occupation, and in decision phase there is no intervention. We take heed of our patient's thoughts only. We ask them, would you like the operation with this method, or the other method. For instance, we have robotic surgery, laparoscopic surgery, open surgery. We care about patient preferences, but there are no occupational interventions. Let's say from the ministry, political and so on, there are no interferences. (URO1, 47, male, public)

There are widespread concerns about the transformation in healthcare program, inflicting serious harm to the autonomy of surgeons. One of the most important regulations that were passed as part of this program re-arranged the restriction on the employment of surgeons. In the old system, a surgeon could simultaneously work at a university hospital and own a private office; but this has been prohibited with the new regulation requiring full-time employment at university hospitals. Most surgeons consider the transformation program as threatening their autonomy:

> It is wanted that we all work with a hospital engagement, so that these autonomies could end. Thus the physician could become a standard health personnel working for wage [*bordro mahkumu*]. So that the physician is reduced to being one among many pieces of the health sector, rather than the whole sector revolving around them. This is the part of transformation program impacting upon the physician! (URO3, 53, male, private)

The transformation of the healthcare sector in Turkey, as part of a wider trend throughout the world, is a major change impacting on various dimensions of surgical

craft. The impact of this multi-dimensional transformation on surgical craft will be analyzed in detail in Chapter 7, particularly in section 7.1, which focuses on the public health sector. Through changes in employment status, hospital organization and administration, and performance-based payments, the transformation policy of the governments since 2003 was particularly aimed at the professional autonomy of the medical doctors. These changes in the public sector drive surgeons, especially those with more competitive skills and experience, towards the private health sector. Some of the interviewees in the private sector expressed that they enjoy a greater autonomy, usually with reference to greater access to technology and less patient load. A particular effect of privatization, on the other hand, has been a greater organizational mobility for the surgeons, as it is increasingly common for surgeons to move from one hospital to another. This aspect and other consequences of the growing private health sector will be discussed in greater detail in section 7.2.

Autonomy from patients – informed patient: There is a power dimension in the surgeon-patient relationship. The knowledge of the surgeon, specific to the craft community and closed to the lay person, is an unquestionable and therefore irrefutable knowledge. While this monopoly over medical knowledge is a source of autonomy for the surgeon, it brings a loss of autonomy for the society:

> Once a society is so organized that medicine can transform people into patients because they are unborn, newborn, menopausal, or at some other "age of risk," the population inevitably loses some of its autonomy to its healers. (Illich, 1995: 78)

The surgeons are completely aware of this imbalance between the two sides, as exemplified in the following citation:

> A woman, who wouldn't take her clothes off with her husband, can do it with you. You can ask very private questions. She can tell you things she wouldn't normally tell her sister. You make people do strange things; do your eyes like that, and so on. They do whatever you say. Of course this is a power. But it's very wrong to apply that power on a person. You can use it only as far as your job requires. (NS3, 52, male, private)

As a consequence of various factors, the public is becoming increasingly interested in and knowledgeable about medical issues. The increasing accessibility of information through the proliferation of media and information and communication technologies, the promotion of healthy lifestyles or the medicalization of more

aspects of human life are among those factors, as previously discussed in section 3.2. One consequence of the increasing knowledge of the patient, furthermore, is considered as the emergence of informed patients. Informed patients continuously seek information on health issues; question the surgeons on the procedures to be followed, demanding certain types and brands of prostheses or other material; and thus become more demanding consumers.

With regard to the patient-surgeon relationship, the emergence of informed patients can be considered as a reduction in the power imbalance. This would mean empowerment for the patient and a loss of autonomy for the surgeon. However, the majority of surgeons interviewed during the field study do not consider this as a threat for their autonomy. On the contrary, they are pleased with this change in patients:

> I like the knowledgeable patient. This may be due to my nature. I am pleased that patient gains a background in order to understand me. But there are difficult aspects. As they mostly get information from the garbage, they may also be wrong, and it takes time and effort to correct these. As I can talk and persuade them on my thought, it doesn't affect my autonomy from my perspective. (URO2, 51, male, public)

> Internet is very effective in this. They get a lot of information. Even if not exact, it is still knowledge. (...) But I respect it. People will make a decision about their life. I consider it normal. (NS3, 52, male, private)

The changing profiles of the patients are also reflected in their preferences for doctors or procedures. The surgeon usually regards this as a positive development:

> Recently a patient came and I performed robotic surgery. He first went to Dr. X and then came to me. He said, "I heard the names of both of you, that is why I came". I asked, "I am not popular in Istanbul, why did you come to me? I have recently come here; in fact I am good but not popular". The patient answered, "But Prof. X is old. I am 47 and when I am 55, Prof. X will not be around, but you will be. I want you to follow me". There is such a point of view. This is the first time I heard it from a patient. Is this an advantage or disadvantage? I think an advantage. (URO4, 47, male, private)

Surgeons consider patient being conscious and curious about their diseases as positive and do not take it as a threat on their autonomy. With the new healthcare system and the patient typology, however, they believe they are less respected:

> I think people are hypocrite. I am telling you my thought. I have reached 17 years. Until you finish a thing, you are the king. But then they start bragging. This is my personal

> view. (...) 80 percent continue to behave respectfully, but there is a 20 percent, they always smear. This is human psychology, normal. (CVS1, 46, male, public)
>
> If you ask me, I believe the days of the physician with an air of half-god, who can't put afoot wrong, talks condescendingly are over. Don't we all develop such "little piggery" attitudes about the work that someone else will be doing about us. We surf the internet, check what options there are. I understand it quite well for people not to leave everything to the doctor on matters related to their health. (..) These also create difficult patient types; not easily satisfied, always trying to test you but I believe these are now the rules of the game. (URO3, 53, male, private)

While the surgeons appear to retain their advantageous position with regard to the patient, a point that supports their autonomy, the points mentioned above point at a trend for change in the surgeon-patient relationship. This is again the reflection of similar trends that are observed worldwide as previously discussed in Chapter 3. The change in patient attitudes and expectations constitute a significant element shaping the work of the surgeons, also interacting with the changes in technology and the organization of the healthcare sector. Therefore, as part of the three-dimensional framework of state, market and patient presented in section 3.3, this will constitute a part of the analysis of the changing social context of surgical craft and will be discussed in Chapter 7.

Craft community: In every craft, there is a regulating body, a guild that defines the standards. There are similarly such monitoring bodies within the surgical community in Turkey. The Turkish Medical Associations (*Türk Tabipleri Birliği - TTB*) is the most significant of these.[59] The association defines its objectives as protecting both the interest of the medical profession and the public health, as well as the moral principles of the profession. Therefore, it aims to function not only as an interest group for the community of physicians, but also as a monitoring body to prevent and correct the mistakes of that body. In that sense, it reflects the guild mentality, by obtaining autonomy for the craft community while promising to ensure proper conduct to the society.

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[59] Established in 1953, Turkish Medical Association (TMA), is "a public association founded with law bearing the Number 6023 and %80 (83.000) of country's physicians are members of TMA. Its main income source is membership fees and it doesn't get any aid from government". (Source: https://www.ttb.org.tr/en/index.php/ttb/ttb-hakkinda).

Apart from the TTB and other organizations established by surgeons, there are committees in each institution that define the guidelines for the operations. Any surgeon who wants to perform a certain operation in a different way needs to obtain the approval of these committees. This includes a complicated process as summarized by a general surgeon:

> I cannot act autonomously as I wish, without scientific data. If an operation technique works A-B-C, I cannot turn it into B-A-C. Do you want to make an innovation, saying "this A-B-C is wrong, it should be B-A-C", and then you apply to the ethics committee. In each university, there is an ethics committee, composed of 11 doctors from different branches. You prepare a file in a certain format, present your justification. "I am planning to do this operation this way on these grounds". The ethics committee reviews and says "All right, this is ethical, go ahead". (GS1, 45, male, private)

It is important to sustain the unity within the craft community, since it is a bulwark against outside threats. When this unity is harmed by the attitudes and decisions of some members, surgeons complain:

> It is going down day by day. Surgeons also have a role in it. When surgeons talk about each other, they also finish that status themselves. I think the biggest factor finishing the statues is again the surgeons. There is no unity, doctors have been trained very quickly, and they did not get sufficient ethical education. The erosion of social ethics also affected. Surgeon is no different ... What the grocer is, the driver is, surgeons are also the members of the same society, same traditions, same families. They are all the same; they did not come from somewhere else. (NS1, 50, male, private)

5.6 Aesthetics and Creativity

In the most traditional forms of crafts, such as carpentry, a really good piece of craftwork gains the admiration of even the outsiders. One senses that there is some extra quality in that piece that goes beyond mere functionality. Such works, furthermore, are rarely the production of young talented hands, but mostly they reflect a level of mastery that is gained through years. While craft production aims at producing things of functional use, therefore, the mastery brings with it that extra quality. As for the detection of this mastery, however, usually the trained eyes of another master are required. It is in this sense that a dimension of internal aesthetics is usually included in definitions of craftwork. One factor that produces this dimension is the perfectionist attitude attributed to craftsmanship, which provides the

impetus for perfection in material and in the using of tools. In the case of surgery, such an aesthetic dimension is very difficult for the layman to detect. The direct consequences of an operation can naturally be observed; but that extra quality driven by perfectionism cannot be. Even when watching an operation from beginning to end, it is not possible for an outsider to recognize it. The existence of such a dimension in surgical craft was frequently expressed by the surgeons in interviews, and is mentioned and discussed in various contexts.

***Haute couture* operations:** In medicine, every patient and every disease is unique. Despite the recent changes toward the division of the human body into smaller pieces in line with the proliferation of surgical specialties, the fact remains that every disease is experienced differently in every different body. Therefore the design of operations also differs from patient to patient. For instance, any two patients that both have diabetes and both will have by-pass surgery, on the basis of a series of parameters, such as age, weight, genetic factors and the existence of different diseases, they are supposed to have *haute couture* operations specifically designed for them. On this basis, sometimes the work of the surgeon is compared to that of an artist, in terms of being unique:

> It is not the disease that is cured in medicine. The patient is cured. The one who tries to cure the disease fails, but the one who tries to cure the patient succeeds. Because each patient has various unique characteristics. Even if each patient's disease is described with the same diagnostic terms, each patient is completely different. The clinical picture it creates, the anatomical, physiological and other details differ from patient to patient. As I said, each operation is a design. (CVS4, 40, male, private)

> [This occupation] is more art than craft. That is, it is in-between. We work on live tissue, live area. What we do is similar to a painter's touches. Actually it fits better with the painter's work rather than the carpenter's. Because when you work on live tissue, a carpenter can make ten pieces of the same case, but the surgeon makes different things on ten patients. (ORT1, 48, male, private)

In orthopedics, for instance, the design of each prosthesis is unique for the patient:

> You produce a piece of work. Because in orthopedics, the people you operate are already in a mess. In the end of a few weeks you make her into a person. You recreate. Because people come and say so: We are re-born. Indeed they are. (ORT2, 65, male, private)

The design phase of *haute couture* operations is particularly significant and extensive. As described below by an urologist, in some cases it starts days ago in the mind of the surgeon.

> If I am going to operate [that patient] I start it in my head 3-4 days previously. I perform the operation in my mind while driving car in the traffic: There is tumor there, when I come across the tumor I should pass through there, remove the prostate that way, better take a biopsy. (URO4, 47, male, private)

Art or Craft?: While it is common among surgeons to define their work as craft, in some cases surgeons tend to put it closer to art. For instance, the brain surgeon that thinks surgery is similar to a musician's process of composition believes that he can be perfect only when he can perform surgery as good as an artist:

> The man is a composer. He wakes up in the night, and puts what is in his mind into notes. You can compare this [surgery] with their work only (...) I am also in the same category. I try to be. I have great respect for them. Those are the people I take as exemplary, not normal working people or engineers and so on. Authors, composers, painters, they also work 24 hours. You will entrust your brain. You may go to a concert to listen to a good Mozart interpretation. If you don't like it you go out. But here you will entrust your brain. Wouldn't you want that person to be as good a brain surgeon as that pianist? I would. (NS1, 50, male, private)

Some of the surgeons interviewed drew a parallel between their tools and the instruments used by the artists. The operation, on the other hand, is considered to have a meditative quality similar to artistic performances:

> Surgery also provides a meditation opportunity just like the artists. The instrument at your hand, the fate of the patient in your hands, you don't live the yesterday or the tomorrow, or debts or relational problems. They also disappear from the mind. Therefore it is also a bit addictive, it should be considered like a prayer or meditation. (OBG5, 49, male, private)

The use of hands in examination as well as surgery is another dimension that defines surgery as craft, but also seen by some surgeons as transforming it into art:

> Medicine is not a craft, it is an art. It is also craft, but not just craft. Not just something learned, applied as an occupation to earn money, it is to add the art upon that base structure. (URO2, 51, male, public)

> The artisanry is there, just like the shoe master. The man makes a shoe, you love. The other also makes, just like a *çarık* (rawhide sandal). There is the significance: Everyonclocke has to be artisan, should make the diagnosis as soon as looking at you, should examine by hand and understand. Such things are no more. (OBG4, 66, male, public)

Good hands: "*Şiir gibi ameliyat yapmak*"[60]: The most important stage of mastery in surgical craft is to have skillful, masterful hands (*good hands*). It is only with the good hands that an operation can be beautifully performed. In order to describe this level of mastery in surgery, a commonly used phrase is "poetic operation". As an urologist puts it:

> "Poetic" means, it is related to artisanry in one's spirit. We go to a congress, 5 persons conducting 5 live operations. You see that one really does it poetically. That person is an artist, uses hands beautifully. You look at the other, everywhere covered with blood, very slow. The first one however, works like a mechanical clock, everywhere so clean. That is artistry. (URO1, 47, male, public)

> I think it is causing least harm to the tissue. Preserving the tissue well. First, you should not harm the patient. You have to work clean, without harming the tissue, doing only what is necessary. Perfect is the enemy of good, they say. And for me, what a surgeon should know is where to stop. You should know the limits. (ORT4, 45, male, private)

The acquisition of g*ood hands* requires the following qualities, according to surgeons:

> How do you have this "good hands"? 1. God's gift. 2. Hard work, let's say breaking that hand. (...) 3. Personal qualities, character qualities. (URO2, 51, male, public)

The acquisition of good hands seems to be possible only as a result of extensive accumulation of experience, long years of work and thousands of operations. Surgeons frequently mention 10-15 years of experience and a minimum of 5000 operations:

> It is pure labor. Do not forget that number, 15 years. Of course, from scratch but not everyone becomes a surgeon. They don't teach surgery in medical school. ... You start with learning how to hold the scissor, and the ultimate point you get is to suture a 1 mm vein by zooming it 9 times. The period of training in the interval is of course very heavy. (CVS3, 61, male, private)

> After 10 years, 5 years residency, 5 years after that, after 10 years your hands become relaxed. (CVS5, 49, male, private)

A major topic of discussion in this respect is whether the good hands are a gift of God, or a result of hard work. Obviously, surgeons are divided on this issue. When a new assistant arrives, the first topic is her hands. Master surgeons express it as: "The

[60] The phrase can be translated into English as "making a poetic operation".

first thing I check is how he/she works with the hands". Coming across gifted hands is like a treasure for a master, since such hands can be trained much more easily. Below are the thought of two surgeons who believe that dexterity comes with birth:

> It should be by birth! Some spills or drops the water. Nothing can be done about it. For instance, makes ten accidents just to get this, something structural. You can improve it with training but only a little. (NS1, 50, male, private)

> I think some are talent, gift coming with birth. That hand skill is a separate talent; there are things that cannot be taught. (ORT4, 45, male, private)

For most of them, still, the best formula is a good medical education and working with a master hand combined with gifted hands:

> Let's say something comes by birth, as God's gift. But it can also be learned. These two should be combined. But if you have no talent, that can be seen easily. I think, you should not attempt then. I have met surgeons with no talent. They know it themselves, too. They either don't do it ... You either change job, or you engage in simple work. (NS3, 52, male, private)

> I don't ever believe in gifted hands. This develops completely with exercise and lots of cases that can be acquired in the kitchen of big university clinics, when you look at the good surgeons, they are all surgeons who have then lots of cases. If you ask me, nobody is born as a good surgeon. (URO3, 53, male, private)

5.7 Character and Attitudes

In defining craft, it is often argued that craftsmanship creates a distinction from outsiders also through particular personality traits. In the case of surgery, moreover, there are widely shared stereotypes that define the personality of surgeons with a list of specific traits. Such traits develop slowly, over a long period of time; therefore, they are defined by the master surgeon. As frequently noted by surgeons, on the other hand, it is difficult to talk of a static, standard "surgical personality". Rather, this is an ongoing process, in which these personality traits are continuously revised or reconstructed on the basis of the dynamic character of surgery and the continuous introduction of new techniques.

Result-oriented, direct, cold-blooded, practical: Surgery is frequently defined on the basis of a comparison with clinical branches. In branches outside surgery, certain attitudes specific to surgery may not have a vital significance. This difference

between surgical and clinical branches is compared in the following quote from an orthopedist:

> Surgery is a way of looking at life. We produce short and clear solutions for everything. Internist colleagues go around the bushes. Most of the time they cannot solve and delay. We surgeons, that is how I see it, are like black or white. Surgery is clear, result-oriented. Internal disciplines are like "not this, not that, let's check that too". Therefore I have no sympathy for internal medicine. (ORT4, 45, male, private)

Surgical occupation is definitely a result-oriented craft. The patient is either referred by other, internist doctors or comes directly to the surgeons; surgeon is supposed to decide on the treatment on the basis of possible outcomes. An operation is conducted on the basis of a certain expectation. The way surgeons think about the cases is described in the following excerpts from an urologist and a neurosurgeon:

> Surgeons are straightforward types. They think simple. They don't need to think very complicated. They detect a problem and they know how to fix that problem. That complicated thought develops when they find themselves in a complex situation in a specific case which they supposed to be simple. (URO3, 53, male, private)

> The most important point, you solve something radically. Not this or that. You just cut it short. Or you know the consequences. If you don't remove, this will result in this but ... an internist ... says something but always something, not definite. (NS2, 66, male, private)

A result-oriented attitude is usually regarded as indispensable for surgery. Surgeons need to aim directly at the problem, focus on it and obtain results. All surgeons describe this necessity in their own words, and the following is a description offered by an urologist:

> Without spinning out, equivocating, overwhelming with formality, taking the shortcut and aiming at the result. This is the nature of a surgeon! Of course, there is investigation phase at the beginning, until reaching the diagnosis. ... But at a point, once the diagnosis is made, surgeon's difference is taking the knife and doing it, if the problem is at that point requiring treatment with the knife. (URO1, 47, male, public)

Surgeons quote numerous anecdotes of moments of crisis they experienced during operations and how they managed them and obtained results. This is also related with other aspects of surgery, such as hierarchy, contingency, tacit knowledge and judgment. A neurosurgeon (NS2) narrates a perfect example of such a crisis. In that story, there is an operation going on, in which the assistant surgeon conducting the operation under supervision accidentally causes a severe bleeding, but both the

assistant and the senior surgeons become paralyzed, unable to fix the situation. So the NS2, who is outside the operating room, intervenes, finds the spot that is bleeding by groping inside the patient's body, and stops the bleeding until a vascular surgeon comes to intervene.

For times of crises, but also in routine surgical work, cold-bloodedness is a trait that the surgeon should develop early. Still, this is also a skill improved with increasing mastery. Particularly the surgeons dealing with extremely severe cases, such as in heart surgery, emphasize this point:

> I have spare underwear in the closet. My underwear gets soaked red in blood. Everywhere is blood. The slippers I put on are filled with blood. Now how can you be normal? And then you like it, I mean, in quotation marks. Or you go out and eat *kebab* with your friends. (...) Some people die before your eyes. You come out and tell it to the relatives. You see how they are shattered. They had hope, they had trust in you. Then you expect me to be normal! (CVS1, 45, male, public)

> You need to be a bit harsh, as a surgeon, sharp or serious. That sort of squirming, now all right we say art, of course it is in a sense craft but you need to me sharper and so on. (ORT1, 48, male, private)

Death is of course a condition that surgeons frequently face in their working life. Therefore, closeness to death is frequently emphasized in their own definitions of their work. This is particularly the case in heart, brain and general surgery, the fields in which the ratio of death is greater in comparison to other fields of surgery. This is such a standard part of a heart surgeon's career, for instance, that they even stop "counting":

> Every surgeon has a cemetery behind. I stopped counting. (...) You either make live or let die. There is no in-between. Or you leave [the patient] with disability. (...) I immediately close the book. It used to take longer. Now I close the chapter, look ahead. I have to ... But I become angry like dynamite... I project it [on other people]. (CVS1, 45, male, public)

> The work we do is on the edge of life. Even the simplest heart surgery, since it is done by first stopping the heart and then restarting it, in a way pausing the patient's life for a few hours. (CVS4, 40, male, private)

This does not mean a loss of sensitivity, however, but giving in to sensitivity carries the risk of adversely affecting the coming cases:

> Given that I have operated around 15,000 patients, probably we lost 250-300 or 400 of them, and may have seen death twice more. (...) I guess, there have been around 150-

> 200 patients that I have lost, that I have operated but could not save. (CVS5, 49, male, private)

> The work I do is like running on a thin line between life and death. There is no other specialty so close to death. In the intensive care or at the operating table, we sometimes feel like we are playing a tug of war. I mean, on the other end of the rope there is someone pulling, someone invisible. The rope moves back and forth. Sometimes it slips away from my hands. Sometimes there is no reason for it to slip away. A very fine operation, a very good patient, a healthy person, no problem. But then you suddenly lose the patient. This is very rare, yet. There you definitely see the tug of war. The work I do is sometimes too much interference in God's work. (CVS3, 61, male, private)

Even when they manage to keep calm and look ahead, however, the loss of a patient also creates feelings of regret and self-questioning on the part of the surgeons:

> There have been times when we were very sad. In some cases I blamed myself. I thought would it better if I had done this way, in order not to lose the patient, but then education is something like that. Being in an educational hospital is like that. (ORT3, 54, male, private)

> In each case of patient death, I first question myself. I ask what I have done wrong. You examine the patient's file for days, check the patient's images, think of the procedures during the operation, I gather whatever record we have about those tasks and review them. (CVS4, 40, male, private)

Resoluteness is also considered as an asset in being a surgeon. Surgeons are distinct among medical specialties in that they decide quickly and definitely. This is also a necessity, since hesitating may lead to unwanted and irreversible complication or situations. Each operation is planned beforehand, but may not go as planned. In that case, the surgeon is supposed to formulate new strategies, and finish the operation accordingly. The way this requirement of decisiveness is described by an urologist can be found below:

> Most importantly they are more attractive persons. More decisive, I believe their organizational skills develop. Most of them become administrators, they have leadership quality. In the end it requires courage, you go to an operation, you have a team, you lead them, and operate a person. A serious coordination, discipline, courage and finalizing the event. It is important to do with less complication and less harm. This gives a capability. This work we do, faster thinking, practical mind. ... The others are more conservative, more conventional, pedant, they write and write. The other [the surgeon] must work fast. (URO1, 47, male, public)

Perfectionism: Perfectionism seems like a second character for this occupation. Surgeons have to deal with numerous details, and literally vital details, on a daily basis. Human body is a complex organism, and there is a huge variety of diseases, and factors to be taken into consideration. The operations are similarly complex

procedures with strict rules for each step. Each surgeon is expected to adopt these rules, apply them uncompromisingly themselves and make sure that the other staff also complies. It is not surprising, therefore, to observe them develop perfectionist attitudes, with little or no tolerance to delay or deviation.

One of the surgeons interviewed presents perhaps an extreme version of such perfectionism, thinking that starting surgical training at childhood would produce more perfect surgeons, similar to the way virtuoso musicians develop:

> A person cannot become a pianist at the age of 24. Then how can that person become a brain surgeon? Is brain surgery simpler than being a pianist? It cannot be, if you do it properly. Then a solution must be found. If I can start around 10, that is enough for me. I wish I can be as good a brain surgeon as someone who started at the age of 25. We [I] are not at that quality yet. (NS1, 50, male, private)

Self-reflection on their work, trying to keep all contingencies in check during the operation, and obsessive adherence to processes, the need for extensive practice are some of the attitudes common to all surgeons. It seems impossible to meet a surgeon who is not a perfectionist. A collection of views of different surgeons on perfectionism are listed below:

> Every day I ponder "how can I perform better today". I am not satisfied with the work I do. I am not satisfied with any of the operations I conduct. It is always possible to do better and I do something differently in each operation. (NS1, 50, male, private)

> This business (...) requires you to be paranoid. It requires thinking too much on one thing, working too much. It requires you to think of the worst and remotest possibilities, and behave as if they are highly probable. (CVS4, 40, male, private)

> There is a saying in English: "Practice makes perfect". (GS3, 73, male, private)

> I have performed over 10,000 operations. But in every knee I make I still find differences. After each operation, I review at length. People around watch me and wonder why I am looking that long. I search there if I have done something wrong. Is there a mistake? I check if there is a mistake. Now, if there is a mistake, and if I don't notice it, the next time I may do the same mistake. So that I don't repeat the same mistake, I study the film in length. (ORT2, 65, male, private)

Self-realization: In an occupation that is invariably described as requiring such a high level of daily effort and commitment, the sources of motivation is also a matter of interest. There may be a long list of material and social benefits that surgeons, in all societies, enjoy. It is undoubtedly a highly-paid and high-status occupation. These are best summarized by another surgeon:

> I don't regret for choosing this occupation. Because 1- I have prestige, 2- I like being respected, admired and having a good place in the society, and doing things with this ambition, 3- In the end earning good money is a good thing, looking after my children, offering good opportunities. (URO4, male, 47, private)

On closer inspection, however, it is difficult to end the search for the sources of motivation at that point. It also emerges in the discourses of surgeons themselves that they have a close identification with their work, to the extent that most tend to reject seeing it simply as work. When they were asked to describe their work, the responses they gave point at a dimension of "self-realization" that they experience. It is common among them to define surgery as a "lifestyle", for instance, saying that it is "lived for 24 hours of the day":

> This work is my life. It is beyond addiction. (...) There is no such work. (NS1, 50, male, private)

Even when they speak about the hardships, statements expressing feelings of superiority or pride can easily be detected. The "heroic image" associated with surgeons further enhances this.

> As you stay you get used to, and you get used to as you stay. Although there is another world out there. We like making the operating rooms our world. We make the hospitals our world. Then we don't know what to do outside. (...) This is not a work, this is a lifestyle. (CVS1, 46, male, public)

> Why is an occupation necessary? To survive, that is for materiality in fact. Without the material reward, for personal satisfaction I think can be compared with no other work, although there may be some ... It is incomparable. On a very sad or very bad day, intervening in a difficult case, and that patient lives ... Surgery is the ultimate point. By cutting, by turning a person's body inside out, doing a job, that a very negative result happens when you don't, but when you do, a life is reshaped. For an occupation, this is a very great honor. (OBG1, 32, male, public)

As mentioned elsewhere, in the comparisons they make with other surgical specialties or other branches of medicine, their own branch is always distinctive either as more tormenting and difficult or as more vital for the patients:

> Of course we should separate brain surgery and surgery. Even within brain surgery there are different categories. For me, the brain surgery I perform –I mean veins, tumor, and so on within the brain- is the ultimate point of surgery. That is, our job is like climbing the Mount Everest every day. (NS3, 52, male, private)

This commitment to surgery may come at a price, as described by a female heart surgeon below:

> I delayed both marriage and having kids very further, and I did not have children anyway, but all the friends working with me now are like my children, I found that love, that is a different matter. Not that you will definitely have everything in life, in this world. You cannot eat bitter and sweet and taste them both at the same time, one of the tastes will be better for you. So I can say that, in the name of doing the best in this job, I made some sacrifices, but these do not seem to me as sacrifice, why not, because as I said I have children. (CVS2, 59, female, public)

In all these different self-descriptions, to conclude, a particular sort of satisfaction can be observed. In particular, surgeons at higher stages of their career emphasize the lifestyle character of their work. In most of them, the almost obsessively perfectionist attitude is accompanied by a clear identification with the work.

Having assessed all components of the surgical craft, it would be appropriate to finish this chapter with an overview of these with regard to how the craft character of surgical work is experienced by surgeons in Turkey and reflected in the field study. In all the sections devoted to a single component of the concept, the Turkish surgeons' accounts of their own work clearly comply with the conceptual framework developed through the theoretical literature.

The study started with the assumption that surgical practice in Istanbul, Turkey provides sufficient ground for an assessment of surgical craft, due to the intensity of technology usage as well as number of surgeons, hospitals and annual surgical operations. The surgeons interviewed in the field study were skilled, competent surgeons experienced in the most developed surgical techniques and technologies. The hospitals and operating theatres observed were similarly places with high volume of operations, equipped with developed technologies and devices. The distribution of interviewees with regard to their specializations and whether they worked at public or private institutions also provided a sufficiently representative ground in order to observe the status of surgical craft as it is performed in Istanbul. Based on these points, the observations relayed in the sections above allow us to conclude that surgery should be classified as a craftwork and that the conceptual framework developed in this study enables the analysis of this craft in its various dimensions.

The findings presented above also demonstrate, however, that surgical craft is undergoing significant changes in its various dimensions, caused by developments in two aspects. The first of these aspects is technology. Surgery has already been defined as a "technology-driven craft" in this study in order to emphasize the essential relationship between continuous technological development and the increasing effectiveness and status of surgery. This is why surgery presents a puzzling example with regard to the eroding effect of technological development on skilled works. The findings and observations summarized in this chapter are in accordance with the general and historical definition of surgery as a craft, and demonstrate that the technological developments of the 20th century strengthened rather than weakened this characteristic. The more recent technologies, however, are making significant impacts on different components of this craft.

Perhaps the most important change is related to the skills and techniques component. As discussed above under the subtitle "new skill acquisition", surgical craft is increasingly being defined by technology, and surgeons are compelled to acquire new skills throughout their careers. While new imaging technologies tend to replace the role of surgeon's hand in diagnosis, the diffusion of closed surgery implies a radical change in the required skill sets. What is significant with regard to the craft character of surgery is that these changes do not amount to an automation of surgery or lead to a separation of conception and execution of the work. This continuous necessity of skill acquisition, however, also impacts on the master-apprentice relationship, which constitutes another defining feature of craft. In this dimension, both masters and apprentices are compelled to learn new techniques, and younger surgeons may surpass their masters in this regard. This implies a weakening of the master-apprentice hierarchy and instability of the status of mastery.

A second important change appears to be in the output dimension, whereby the conception of treatment transforms from a more holistic view focusing on healing to a more technical view focused on mending separate parts of the body. In the autonomy dimension, moreover, surgeons are faced with challenges from both organizations and patients. The changes in the organization and administration of

public hospitals and the increasing privatization transform the organizational context of surgery. The change in the demands and expectations of the patients who are becoming more informed is also mentioned by the surgeons as a new feature of their work. The impact of these changes on the professional autonomy surgeons have possessed is a question that needs closer scrutiny.

These changes, in turn, are related to two significant dimensions of change in the provision and organization of healthcare in a broader sense. The first dimension is obviously technological. What are the recent technological developments that transform the practice of surgical craft? What are their impacts and do they lead to an erosion of the craft character of surgery similar to the deskilling effect of automation in other areas of professional work? These questions will be scrutinized in detail in the following Chapter 6, which focuses on three technology-related changes in surgery: The introduction and development of digital imaging technologies; the increasing sub-specialization of surgeons; and the diffusion of closed surgery. Focusing predominantly on the skills, but also on the master-apprentice relationship and output dimensions, the chapter will present an assessment of these changes.

The second dimension of transformation relates to changes in the three categories of state, market and patient which constitute the social context of surgical craft. The transformation of healthcare system in Turkey and also globally redefines the role of the state in the provision of healthcare; the increasing privatization and marketization of healthcare means the dominance of market forces and mentality; while consumerism and the greater accessibility of health-related information change the attitudes and expectations of the patients. These topics constitute the subject of the Chapter 7.

To conclude, despite all these changes surgery continues to maintain its craft character. In the context of the observations relayed in this chapter, the surgical practice demonstrates all the attributes required by the conceptual framework of surgical craft. The chapter, therefore, shows the validity and usefulness of the conceptual framework offered in this study. By offering a multi-dimensional

framework for analysis focused on the actual, daily work practices of the surgeons, moreover, the usefulness of the concept of craft will be demonstrated in the analysis offered in the next two chapters.

CHAPTER 6

TECHNOLOGICAL CHANGE AND SURGICAL CRAFT: A HAPPY MARRIAGE?

This chapter covers the interaction between technology and surgical craft as reflected directly in surgical work. In parallel to the conclusions of the previous chapter, this chapter will focus on three instances of technology-related changes in surgery which have significant impact on various components of surgical craft. The first of these instances is the growing role of digital imaging technologies in diagnosis. By replacing to a great extent the surgeon's hand in diagnosis and offering greater scope and precision, these technologies have transformed the practice of surgery. The second topic will be the issue of increasing sub-specialization in surgery. In the third part, surgeon's interpretation of the effects of new technologies will be analyzed. In the final section, the case of closed surgery will be used in order to discuss the effects of technology on surgical craft. The way surgeons responded and adapted to this significant shift in surgery will be presented by classifying surgeons in three generational groups. Analyzing these instances with regard to their impact on various components of surgical craft, the chapter aims to assess the impact of technological change on the surgical craft.

6.1 Imaging Technologies and Surgical Craft: Hand or Technology?

The history of medical imagining begins with the invention of X-rays in 1895 by Röntgen. The chance to see inside the body that this invention enabled was a

revolutionary development. The efforts to develop other methods of inspection continued throughout the twentieth century, and matured with the ultrasonography in 1960s, the CT in the mid-1970s, and the MRI in 1984. The discovery of CT was enabled with the developments in computer technology. Altogether these technologies, integrated with computer and X-rays, provided the possibility to visualize the body in various forms. This, in turn, was helpful in diagnosis of diseases, also enabling early detection. These imaging and diagnostic technologies improved performance in surgery by increasing precision in detecting the location of diseases and in the conduct of operations.

Turkey, despite its limited production or R&D in medical technology, is a significant importer of such technologies. New technologies are continuously adopted and used shortly after they emerge. The growing health sector as a profitable field of investment plays a significant part in this speed. The increase in the number of private hospitals, the heavy investment by these hospitals in technology as a means of attracting patients, together with the impact of the transformation program in health care system, enhanced both the demand and supply for new technologies. The low level of investment in R&D, in contrast to the volume of operations and experience on the part of the surgeons, is considered as a matter of concern:

> Turkish firms do not allocate any resources for research and development. Plus, they do not give any importance to our experience. Sometimes they steal our experiences; they indulge in intellectual property theft. Therefore, we also do not like to share our experiences. If there were R&D, in the professional sense, if I spare my time professionally, just as I did to you, and if there were a benefit for this, then it could help R&D. In the end, we are performing hundreds, thousands of operations. We have a certain level of experience. This is what happens abroad. Doctors, they are consultants to certain firms. It develops this way. You conduct the same operation here. We also have a thought, an experience, an accumulation of knowledge. This cannot be transferred. This R&D business is null in Turkey. Therefore, Turkish doctors do not generally share their knowledge much. (ORT3, 54, male, private)

Before the spread of these imaging techniques, surgeons had to use different methods. Prior to advanced medical technologies, the limited technologies available were combined with surgical imagination and judgement. The quotations from the interviews given below provide subtle descriptions of these older techniques:

> In the time we were trained, [as neurosurgeons] we had the ophthalmoscope in our

> pockets. We used to look at the eye balls. We were looking, that is, at the optical nerve; the optical nerve is an extension of the brain. In some issues, we also check with light, the reflexes and so on, we check the thing on the brain when we look there. Is there an edema in the brain? Is there something in the brain? Therefore, in every patient, even when the patient complains of headache, I would check with it. Now, go visit all the neurosurgery clinics around Turkey. You won't find the ophthalmoscope in most clinics, let alone inside the pockets. (NS2, 66, male, private)

> In the MR of the patient, I can see a 1 mm map of the brain. But that is not all. These devices did not exist, but 40 years ago my professor operated better than me. So, there is something going on here. (NS1, 50, male, private)

> Previously, prostate was cured with closed surgery, there was no endovision system. Endovision system came, and everyone started to work visually. If it took a year to learn that operation in the past, now it could be learned in 15 days. Why? Because you are able to see everything. Otherwise, the professor would say something like "come, take a look inside". You could not see anything. We were just holding the bowl, we call it bowl, the assistant. Now the endovision is set up. All the assistants learned all the steps. Now we are doing robotic surgery. There is the endovision system monitor. We can broadcast from the conference room when we wish, everyone can see and learn. Learning became easier. It enhances learning, but also enhances the control over the area of operation. You can see the small vessels, they do not bleed unnecessarily. These offer benefits to both the physician and the patient. (URO1, 47, male, public)

Before such imaging technologies emerged, the treatment procedures were difficult for both the surgeon and the patient.

> The first milestone in neurosurgery was the CT. Speaking of Turkey, its first introduction to Turkey should be 1983, or 1982-83 if I am not wrong. And in later years the MR, it came around 90s. Its nature is this: We, I already told about other branches, the same story, we used to open up and look. We did not have that chance of course. (…) We did not have the chance to open up [the brain] and have a look, unlike the other specialties. Our priority in diagnosis had to rely on competence in neurology, because the science of neurology is like mathematics. If you figure out the right point, you will find it. Second, there were some additional things … For instance, scanning the spine. You took a normal X-ray, and found nothing in the bones, but you wanted to see inside, the spinal cord. We would do an injection on the upper back. We would enter with a big injector called lumber function and inject an opaque substance. So we would make the inside visible, and by turning the patient upside down in order to scan the movement of the medication. Then we would take X-rays of the places it stuck. (NS2, 66, male, private)

As the first-hand users of these technologies, what is reflected in their accounts can be summarized in three points: They generally have extensive access to new technologies; they are able to follow the most recent developments; and they are able to find chances to learn how to use them:

> Turkey has this capacity. Turkey is in a very good position, rich and strong enough to buy. This is the case in neurosurgery, also in medicine, the country is in a very good position. Financially, it is among the better-off in the world. I can buy lots of new

> devices before many others (...) I was in Argentine last week. When there is a congress, they place all the new devices there. (NS1, 50, male, private)

> In recent years, my chances to use technological devices increased. And this is thanks to eagerness, going abroad and learning and transferring them to Turkey. We did not invent this technology, we did not but it is also that people are not much interested in such things. I mean many people choose easier works. We chose the hardest. I think this is the hardest in heart surgery, and this kind of whipped me. For this reason I became a pioneer with the coming of these systems to Turkey. Today it is a more comprehensible system. More people know this job in Turkey now, so a certain level of knowledge, not only doctors but also among the nurses, assistant health personnel, hospital managers, health administrators, political-administrative circles, the level of knowledge increased. Maybe this makes it easier for us. In that sense, doctors nowadays have an advantage: We set up a ready system for them, present them. Of course now that many positions are filled up, they have difficulty in finding job opportunities. (CVS5, 49, male, private)

With regard to imaging technologies, apparently surgeons are fond of using them, yet it is the surgeons who decide whether they actually help in their work, in the operations. The zooming lenses that the surgeons use for magnifying the images during the operations can be an example in this context. With the help of such magnified vision, intervention to organs or tissues becomes easier. This technology, however, may not be suitable for all branches. The robotic surgery with high capacity of zooming, for instance, could not present a chance for improvement in some branches, cardiovascular surgery being one of them:

> I am one of the best surgeons in using technology. Zooming, a normal surgeon uses at most 4.5x zooming, I use 9.5x. This is a huge technology in this field. I can record it on video. I can watch my patients electronically from far away. I tried robotics surgery, but it did not work so we gave up. It was a great disappointment for us, robotic surgery. There is one robot over there inside, lying there. We plugged it off. It is a small robot but we plugged it off. If you want to take a photo of the robot, boys can show it to you. (CVS3, 61, male, private)

Examination with hands is an old tradition in both surgical and clinical branches. Physician touches the patient, gropes the places where the complaints are, presses, and listens with the stethoscope. It is usually mentioned that the increasingly complex imaging and diagnostic techniques developed in the last three decades are eventually replacing this role of the physical examination by the doctors. The extent of this change, however, is considered differently on the basis of age, as the older surgeons tend to prioritize examination with hands. The surgeons engaged in intensive use of technology, on the other hand, continue to stress the importance of knowing how to examine by hands.

The preciseness and visual quality of these imaging technologies, together with their diffusion, led to a situation where the surgeons came to rely more and more on them for diagnosis. Both surgeons and patients are pleased with them. In terms of a surgeon's diagnostic skills, however, this also contains a downside. As the surgeons become dependent on these imagines, older techniques that involved contact with the patient and higher concentration tend to disappear. This, in turn, increases the chances of misdiagnosis in certain conditions:

> The patient comes, saying I have a headache. He had a tomography scan or a brain MR. No examination, and the patient leaves. MR or the tomography comes. Sometimes it is not the same doctor evaluating the tomography or the MR. Sometimes another doctor on duty there, as he is not aware of the clinic, and the patient was not examined anyway. If he is not good at reading the MR or tomography, and there is a group of physicians who are dependent on the report written by the radiologist. And when the radiologist is also not competent, if he misses, then all these are to the disadvantage of the patient. Now, technology has its pros but also cons. Otherwise, if the physician makes a serious examination, localizes it in his mind, in one part of my mind I expect it, then it is quiet easy. Send to MR, send to tomography, be localized before the film arrives, look at it and fix the diagnosis. But when it is not that way, and then it goes and comes, 2-3 maybe 5 day passes, he forgets it in his mind what it was, he does not know either as he did not examine. There are too many cases in this way. I mean missed or diagnosed late. (NS2, 66, male, private)

In the debate on hands or technology, some have argued that what matters is "judging with reason":

> I mostly trust my feelings, experience, reason and knowledge. My mind has to bring all these together. Technology is good to the extent it supports this. I am "assisted" by the technology. I am not against technology, do not get it wrong. I am among the most intensive users of technology. Currently I have the best technological means. But it works only if it combines in my mind, otherwise it is nothing. Hand does not mean much alone. The simplest case, they weave carpets. How do they do it? We cannot use our hands so good. They do the same movements since childhood. I adore them. The wood masters, for instance … But one other thing is absent there. So the issue is not the hands alone. It is the mind that should be used. Reason should be using technology, the hand. Mind has to combine them. It is the brain that conducts the operation. (NS1, 50, male, private)

Taking into consideration the precision offered by the imaging technologies, some regard technology's superiority as beyond doubt. This also differs according to surgical branches. For instance in brain surgery, imaging technologies have a very positive role:

> I can say that we use more technology in the diagnosis stage. Because the examinations we used to conduct with hands have become too primitive. Although we cannot find

> much with hands in patients, with the MR there are lots of things. For instance, that patient was a referral; already seen by a physician, diagnosed. Since they came to me with a very specific question about the diagnosis, I did not need to see the patient. I just looked at the MR and commented. And that was sufficient for that patient. But of course, if the patient is not seen by any physician, then it is not possible without seeing the patient. I mean, even with the MR, it is very important to see the patient. (NS4, 55, female, private)

A significant topic of debate here is about the extent to which technology takes priority in this process. After all, no surgeon is ready to leave the stage of diagnosis completely to technology. Even for those engaged in intensive use of technology, the concern in this issue remains:

> We always say this: Technology should not surpass our hands. But in real life, technology is gradually taking over. Sometimes you diagnose without ever putting your hand on the patient. For instance, the hormone levels of the patient come, the ultrasonography, the biopsy. The only thing left is to say "open your neck, let me see". There may be a very big thyroids. We look at them, touch them. But honestly, in many cases we touch only to have touched. Because what I am going to gain by hands, I already have everything before me, to the level of cells. It is safer. Technology has brought to such a point that when it gives information at the level of cells, my hand may become meaningless in most cases. (GS1, 45, male, private)

Those surgeons who prioritize examination by hands in their practice continue this tendency despite technology. Particularly in branches such as urology, diagnosis with hands and eyes is considered vital:

> I use my hands more intensively. I am among those who seriously use hands still. To me, I would say 70 to 30 % previously, but now it may have lost some weight. In urology, many things can be seen from the outside, anyway. I know urologists today who do not even ask the patients to remove their underwear, but this is unacceptable for me. (URO3, 53, male, private)

> In the stage of examination and diagnosis, hands and the communication with the patient always prevail, and no high technology or diagnostic method can take over this. (CVS4, 40, male, private)

Good hand skills in diagnosis coincide with the craft side of surgery. Regardless of the intensity of technology, it is still reasonable to say that the surgeon feels safer as long as these skills are learned and used. For, at the current level of technology, even with the robotic surgery, it is the hands of the surgeon that command the devices, a basic feature of craftsmanship. Remembering days of apprenticeship, CVS5, describes how his master taught the skill of using his hands:

> I can compete with technology in feeling certain things! Listening to the patient with my hands, when I listen I can tell the level of murmur in that valve, say that this is important. Because when we were doing operations with such listening, in the late 1980s, echocardiography (echo) was not so common. Professor would ask "what did you hear in the mitral focus?", "I heard this, this much" you would answer. "Did you listen to the aorta?" "Yes. There is leakage in the aorta." After that you have an echo, and results are the same. (CVS5, 49, male, private)

Stating the significance of hands in surgery by saying "our hands first", NS2 clearly notes that it is the hands of the surgeon that commands the robot:

> Our hands first. First our hands. Technology should give support to your hand. Our hands first. This thing to the patient, they say robot or something, even there you use the hand. It is the surgeon's hand that drives the robot. If he does not insert his hand [into the body], he plays with that thing [handle] of the robot. (NS2, 66, male, private)

Not sufficing with saying "hand is important", one of the orthopedic surgeons notes that, although they use all kinds of technological devices, a great part of their craft is still conducted by hands:

> In fact it is this way: 80 %, the doctor himself. Auxiliary diagnostic methods are 20-25 percent. With auxiliary I mean MR, the imaging techniques. 80 % is done by our hands. That is the doctor's examination. Looking at the patient, examination, listening. I think it is still 75 %. (ORT4, 45, male, private)

Despite the precision provided by advanced diagnostic technologies, the physical-sensual communication with the patient continues to be important. Such a communication has a further function of emotionally building trust in the patient. With the construction of this trust, the patient feels safe to communicate her complaints. This point is emphasized by almost all the surgeons interviewed. One cardiovascular surgeon, for instance, particularly emphasized that physical contact with the patient and examination by hand should not be disregarded, both in his specialty and in other specialties:

> We use technology in diagnosis, unfortunately, but I am one of the surgeons who did not stop touching the patient. Even when I go into a patient's room at 12 am, I hold the hand of the patient while saying good night, and check if he/she is sweating, has fever, is excited, has any problem. This is very important. Many of our colleagues send the patient directly to tomography. That's not correct. Must place the patient on the examination bed, must see the naked body, must touch. Youth now use 90 % technology, which is very wrong. You should never lose physical contact with the patient. (CVS3, 61, male, private)

The statements of the two cardiovascular surgeons above, CVS5 and CVS3, and the statement below by another, indicate the significance of listening as well as examination by hand in cardiovascular surgery. In other words, the skills of a cardiovascular surgeon are not limited to the hand; other senses should also be developed in learning and performing the craft:

> In the diagnostics step (…) communication with the patient, the information the patient gives us while describing and our contact with the patient, the sounds we hear from the patient are the most important findings. Experience plays an important role here, naturally. The more we touch patients, the more heart sounds, lung sounds, intestinal sounds, the murmurs in the veins we hear, the more we are able to differentiate. I benefited a lot from my musical ear in that respect. Since I had musical education since small age, the development of my sense of hearing helped me a lot. (CVS4, 40, male, private)

It could be possible to interpret this emphasis on having a fine ear for music as a reflection of the artistic sensibility involved in the craft performed. While hearing emerges as significant in examination for CVS, a neurosurgeon stresses the role of listening to the patient, in addition to examination by hand. In a sense, the surgeon notes that it is the story, the narrative of the patient that will determine the diagnosis and the treatment afterwards:

> First your hand will touch the patient, you should grasp the patient. And this, let alone the diagnosis, is a moral boost to the patient. It is very important that the surgeon touched. It is important that the patient feels it. When the patient feels that warmth, she will try to give you something more comfortably. Now, in our diagnosis, the most important thing, 50 % of it, is listening to the patient. Sometimes the patient tells and describes so elegantly, you make the diagnosis while she is talking. But this requires listening. (NS2, 66, male, private)

Despite the significance of emotional contact with the patient, sending patients to diagnostic procedures without any physical contact is a growing tendency. The patient, from the standpoint of such an approach, can be taken similar to a broken machine. The diagnostics intervene between the patient and the doctor. One of the urologists interviewed strikingly depicts how the patient is reified in such a process:

> The doctors do not know even the simplest examinations now. A mass in the abdomen, the doctor did not examine the abdomen, continuously asked for ultrasonography, but did not see the mass… we see so many cases like that. It moves towards the position of a more technical field. Where diagnostic tests are demanded, tomographies, ultrasonographies demanded as soon as seeing the patient, never examined, lungs not listened with a stethoscope … what we call prima vista diagnose, that is patient is an object coming through the door, without examining or looking at the patient's face,

> what is your complaint, headache, head MR and tomography demanded, we are going toward a period in which communication with the patient is weakened. (URO1, 47, male, public)

Another surgeon, NS2, describes this immediate demand of MR based on complaints replacing examination by hands as an "adverse use of technology", and states this is not doctoring.

> There are colleagues who use technology adversely. What is that? Say, a patient has a complaint, he starts writing brain MR, neck MR, back MR, lower back MR, everything… This is not doctoring! This is not. As I said, if we could settle this in Turkey, then it helps. But in this situation, that is not possible. (NS2, 66, male, private)

In light of the observations and excerpts listed above, the new imaging technologies appear to have impacted on surgical craft in a series of dimensions. The most significant dimension relates to the skills employed by surgeons in the diagnostic phase. These digital imaging technologies tend to replace the use of hand, and the tacit knowledge implicit in the surgeon's touch. Would it be reasonable to conclude that this amounts to a serious erosion of the craft character of surgical work? Such a conclusion would be an exaggeration of the impact of these technologies on two grounds. First, surgeons continue to stress that the surgeon's hands continue to play a significant role throughout the whole process despite the intensive use of technology. It appears that the surgeons consider new technologies mostly as tools assisting them and enhancing their performance, rather than replacing them. Secondly, the use of imaging technologies requires surgeons to acquire new skills in order to interpret the images produced, thus what occurs is a replacement of skills associated with hands with skills related to image interpretation. This replacement cannot, however, be regarded as a form of deskilling.

The intensive use of imaging technologies also has effects related to other dimensions of surgical craft. One of these is related to the output dimension. To the extent that surgeons rely on these technologies rather than physical contact with the patient's body, this tendency coincides with the trend towards an understanding of treatment as the mending of broken or dysfunctional body parts. When the physical contact between the patient and the surgeon is lost, this may amount to a weakening of the communication and emotional contact among them. While the surgeons

interviewed continue to stress the importance of such contact and communication, they usually complain that it is weakened as the younger generations of surgeons tend to rely more on these new technologies and ignore contacting with the patient more extensively.

6.2 Sub-specialization: Effects on Skills and Treatment

Today, surgeons tend to focus on certain organs and/or diseases within their specialties, as the number of different procedures increase, the level of knowledge that the surgeons must possess grows, and competition among surgeons and hospitals is intensified. The increasing role of technology is a driving factor in this. With the development of new technologies, the types of operations proliferate (e.g., open, closed, or robotic surgery), the number of devices to be mastered increases (e.g., the use of artificial heart valve implants in cardiovascular surgery), the variety of procedures, techniques and technologies increases. Therefore, within each specialty a further division of labor is observed. Thus, a general surgeon may be known more as a thyroid surgeon, or an orthopedist as a knee surgeon. Indeed, it may even be too "general" for a surgeon to introduce herself as a "general surgeon" today, since general surgeons usually focus on specific *sub-specialties*, such as "colon and rectal surgery", "thyroid surgery" or "liver surgery". This primarily means that the surgeon in question has performed numerous successful operations in that sub-specialty, most probably published on that topic, and a majority of her operations fall into that category. Sub-specialties reflect the increasing complexity of medical knowledge and surgical techniques in each specialty, and the need for deeper vertical specialization. This also means that a general surgeon in the older sense could be seen as "multi-skilled" compared with a surgeon specialized in thyroid surgery.

While most of the sub-specialties are not formally defined, it is significant information for a surgeon's reputation, since it is disseminated among both other surgeons and patients. In the case of surgeons, they may refer their patient to other

surgeons on the basis of the nature of the disease or the treatment required. In the case of patients, similarly, the demand for surgeon may depend on this information.

Defined as the situation when a surgeon maintains a further specialization within the formal branch of surgery s/he is a member of, obtaining sub-specialty can be considered as a necessity. However, the tendency toward narrower sub-specialties can also raise concerns about "over-specialization". Over-specialization is sometimes associated with the risk of "medical overconsumption", though there are limited studies on it (Villet, 1991).

In the case of Turkey, it would be difficult to conclude whether over-specialization or multi-skilling is more common, but within the confines of this study over-specialization trend appears prevalent. Starting with 1990s, it has increased in 2000s. The factors that led to this trend can be listed as technological developments, advances in imaging technologies, the diffusion of laparoscopy, and the increasing amount of expenditure on technology. In addition, the demand from the patient is also a factor driving this trend. Patients increasingly search for surgeons specialized in specific areas and with large volumes of cases.

The division of the body and the organs into smaller pieces, together with sub-specialization of surgery on these pieces, may invoke a comparison with Fordism. This increasingly narrow specialization may be considered as the over-fragmentation of the body by technology, leading to a loss of a holistic view of the human body. However this fragmentation does not degrade the skills of the surgeons, turning them into less skilled workers; on the contrary, increasing specialization for the surgeons is possible only with the acquisition of additional skills. As these new, additional skills require longer training, they become more valued, and demanded by both patients and organizations. For this reason, it would be difficult to analyze this change in surgery through concepts of industrial production. That specialization and fragmentation do not lead to deskilling can be considered as a paradox, which becomes more comprehensible by comparing with another craft. In the case of tailors, for instance, there is specialization in various areas, such as tailors specialized

in wedding garments or in men's suits. In each case, the craftsperson acquires additional skills besides the basic tailor training.

This process of increasing skills accompanied by growing specialization is best exemplified in the following summary presented by a heart surgeon:

> I, for instance, decided to be a doctor when I was at the secondary school. When I started university, I decided to become a surgeon. When the day came, I chose to become a heart surgeon. When I became a heart surgeon, I decided to become an adult heart surgeon. Today I am a coronary surgeon. So as time goes on, it becomes denser, if you have noticed. So you need to know what to do. If you say I can do everything, that's not right. (CVS3, 61, male, private)

As noted above, the experiences and tendencies of surgeons in Turkey are toward specializing further into sub-specialties. By focusing on a particular area, a practitioner may risk losing competence in other areas, but may also be considered as leading to being a "better surgeon", through more extensive experience in that area.

> These days, now even ears will be divided as left and right ears almost. That is how deep they are trying to go. As you go deeper, you may become more efficient. (…) If you narrow the field, it is possible to become a better physician, with more in-depth knowledge. (NS4, 55, female, private)

> Well, I believe overspecialization is better. I mean you will be very good, super, the best in one field. You will be knowledgeable about other fields too, but you will be authority in one. So, there will be no one better than you. (ORT2, 65, male, public)

> Due to the developments in knowledge, I am increasingly left in a narrower area. In 1995 I came here to become a general surgery specialist. The point I am now is "I do digestive system surgery". I do not do thyroid, I do not do breast. I start learning deeper in a narrower area. This also gives the result that I do this surgery in the most specific way. I can no longer know the whole general surgery. For example, if the cumulated knowledge in general surgery was 100 in 1995, now it is 200 only in the diseases of the digestive system. So, naturally I have to become specific in one field. (GS2, 44, male, public)

Another dimension of over-specialization is related to the patients. Patients prefer surgeons who have seen more cases in their disease, and specialized in that particular area.

> I mean, patients also choose it more, they demand it more. For example they look, there are lots of patients who say "we have come to you because you worked more in this issue". Maybe that is also the right thing to do. I mean, let's say in neurosurgery, "I am very good in both cranial and spinal", that is difficult. One should be able to say "I am good at cranial, and in spine I do routine, regular things. If more elaborate work is required, I refer to my colleagues". I think there is nothing to be ashamed in this. (NS4, 55, female, private)

> In urology, for example, there is pediatric urology, there is andrology –concerned with men's reproductive health- there is women's urology, there is a branch concerned with voiding dysfunction, and uro-oncology concerned with cancer, endourology, and so on. So, all these require further study. In a medical world where people are so demanding and the issue so much oriented to the result, I think this is inescapable. (URO3, 53, male, private)

> This is a great advantage for the patient. I mean, he or she will have the operation made by someone who performed it 1500 or 5000 times previously, rather than 3, 10 or 50. (…) Let me put it this way, I don't recall the exact numbers but I can say the total number of my operations is 18,000 in total. At least 13,000 of them are on the spine. I am better in that. (NS2, 66, male, private)

Specialization in surgery depends on the part of body or the organ, and some branches are not suitable for overspecialization. In the following excerpt, a cardiovascular surgeon underlines this point:

> Overspecialization … That depends on your attitude, on the environment you are working in. If you are working on a small area, you need to know everything. And if you are working at the cutting-edge like me, it is more suitable to work specifically on this issue. It is up to you. Dr. X is a very good cardiovascular surgeon. But for now, doing only vascular opening operations. I am doing only heart operations. I do not do vascular surgery. (…) When you overspecialize, you are being cited for it of course. People say, "only this professor does that". (CVS3, 61, male, private)

A practical advantage of overspecialization for the surgeons is related to time limitations. For an individual surgeon it is increasingly more difficult to catch up with every new information or innovation in a specialty. Focusing on a particular sub-field, therefore, enables the surgeon to develop greater mastery on that field. This point is emphasized in the following excerpts:

> There are no multiple fields any more. It is impossible to catch up with all. Knowledge has accumulated to such an extent. Therefore we started to specialize. Everyone takes up a separate field. (OBG4, 66, male, public)

> I envy my colleagues accumulating in-depth knowledge in all topics! That is very difficult. I wish it were, I wish I were knowledgeable in every topic, but I cannot. I think there is such a tendency. (NS4, 55, female, private)

> It is much more logical to go on a single field. In our specialty, I mean concerned with hip, feet, shoulder, spine, and tumors, you cannot have a grasp of everything. For this reason, you should become specific in one or two sub-fields, unfortunately. When you say "I can be competent in multiple fields, in all fields", there may be complications that you could not predict, or there may be handicaps for the treatment. Thus, we prefer specializing in one or two fields. (ORT1, 48, male, private)

> There is specialization in the world; there is a trend toward specializing in single field. For example, in my clinic there are specialists in women urology, concerned with men andrology; I am focused on uro-oncology. There are several fields, and it is difficult to

> learn everything. There are so many presentations in our meetings. You cannot attend all of them. There are 15 meetings held at different rooms at the same time. This is a team work. I know everything about uro-oncology, whatever there is in the world, but Ahmet knows women urology. He refers to me, and I refer to him. I know, but not in detail. It is impossible. (URO1, 47, male, public)

Among the surgeons consulted in this research, there are also those who think overspecialization may have disadvantages in some aspects. Those surgeons who are concerned that overspecialization may create a "blinder" effect, the possibility of losing the whole picture, express this in the following way:

> More focus … Now there is a limit to that. (…) If you say I will do only this in neurosurgery, then you lose the vision you could gain in other fields. You just look but cannot see anything else. I am a brain surgeon, but I go and watch a plastic surgeon's, a heart surgeon's or an otolaryngologist's operation. What they do, how they do it. Therefore you should not close yourself much, you should keep antennas open. I think you should not narrow too much; if you narrow too much production can be limited there, creativity may decrease. (NS1, 50, male, private)

> I won't answer black or white. In one field, this happens a lot, for instance in heart surgery. The guy performs by-pass very refined, very specialized, only performs by-pass. But his eyes are fixed there, so he may miss a very major change in other areas that may affect his field. (NS3, 52, male, private)

There are also surgeons who think that over-specialization is not so widespread in Turkey's conditions. In such accounts, though it is admitted that surgeons may gain prestige when specialized in a narrow field, it becomes apparent that overspecialization is not very common in reality. It is especially emphasized that an overspecialized surgeon would lose income, due to the scarcity of patients.

> This is popular culture. Shall I say why? Now, go to that surgeon showing off, saying "I am a specialist of this or that in both Turkey and the world", and say "I want you to perform by-pass operation to me", will he answer no? Of course he will say yes. He will earn money in the end. You specialize, so that you gain reputation in one field. You are doing transplant. You say "I am a surgeon doing heart transplant". This is your advertisement…. But in reality there is no such thing, you would go hungry … Look, these are separate things. "I am very specialized in this". How many patient of this will come to feed you? (…) I don't believe in it. The surgeon of a specific thing cannot earn a living. Doing something extra is advertisement for you, enhances your prestige. But you still live on doing everything. (CVS1, 46, male, public)

> You cannot be a specific specialist in Turkey. There is no single specialization here. (…) If you have a group of 4 or 5. You all do separate things, but earn the same amounts of money for the pool. Or then maybe, within X's circle Y does the calculus operation, and within Y's circle X does the prostate operation. Within that group you may exchange patients. The patient now comes to the group. If you set up this system you become specific. If you cannot, you become semi-specific. But you need to specify in any case. Very difficult. A man does calculus operation, then in a moment also doing

> testicles sperm scanning operation. Then he goes and does urinary incontinence operation on a woman. Then he turns back and does prostate surgery. Why? He needs to earn money. (URO4, 47, male, private)

The private/public distinction emerges as another factor affecting the trends. Due to the limitation on technological means and heavy patient load, in public hospitals multi-skilling may become a tendency or necessity in training. Overspecialization increases, on the other hand, in those private or public hospitals that are established for singular fields, have specialized research centers or those that preferred to become specialized in certain specialties as a marketing strategy.

> If I went to smaller cities, for instance, to a state hospital, a university hospital, then I would have to change to doing everything. (CVS3, 61, male, private)

In conclusion, the impact of increasing sub-specialization can be observed most intensively in two components of surgical craft. The first is the skills and techniques dimension, and sub-specialization is a strong indicator of the requirement for new skill acquisition. The technology-driven character of surgical craft requires surgeons to become ever more specialized in narrower areas in order to catch up with the increasing pace of technological development. The second component affected is the output or how surgeons define treatment. In this case, the increasing sub-specialization is associated with a mending view of treatment, as it leads the body to be increasingly perceived in parts subject to mending rather than as a whole person in need of healing. One interesting point in this respect is mentioned by one of the interviewees: While sub-specialization tends to be in resonance with the patients demanding the best surgeon to perform a specific operation, commercial concerns may also limit this trend toward sub-specialization among surgeons, because narrowing specialization may also mean a narrower pool of patients. This seems to be a particular challenge that each surgeon would need to face in their individual careers.

6.3 Surgeons' Perception of Technology: "Technology makes me a better surgeon"

In the last three decades, there has been a serious intensification of technology in medicine. The imaging technologies are now indispensable for the surgeon; now they know much more before invading the body. One of the major turning points that rendered surgery technology-driven has been the introduction of laparoscopic (closed) surgery. Laparoscopy was accompanied by other technological innovations from cardiovascular surgery to neurosurgery, and in basic instruments such as electro-cautery besides scalpel, or enhanced lighting. The introduction, and then perfection of by-pass in cardiovascular surgery, the emergence of advanced prostheses in orthopedics, the intensive use of laparoscopic techniques in general surgery, urology, and obstetrics and gynecology; with all these technology has become an indispensable part of surgical work.

Imaging technologies played a special part in this: Ultrasonography, particularly in obstetrics and gynecology, urology and general surgery; CT in both general surgery and neurosurgery; MRI in orthopedics and neurosurgery; and endoscopy in general surgery. These technologies have created significant changes. For the surgeons, (i) they decrease the role of both judgment and hands in diagnosis; (ii) render diagnosis a separate task, with other specialists, particularly the radiologists, becoming responsible. Such a separation of tasks and division of labor may be expected to result in a deskilling for surgeons. Yet, it is difficult to argue that, because surgeons also acquire and develop their skills for reading the images like the radiologist.

Reflecting this intensification of technology, narratives of surgeons pleased with this close relationship with technology are more common. It has been frequently stressed that technology makes a surgeon better. Yet, it has also been frequently noted that the surgeon retains the craft, and makes better use of her hands, despite the weight of technology.

> Technology helps my skill and ingenuity to be revealed. Well, "*alet işler, el öğünür*" [tool works, hand boasts]. The more advanced our tools are, the better work you produce. (…) As technology develops, surgeon relaxes. The better material … Now you

> buy shoes from *Mahmutpaşa*, and from *Beymen*. Both are shoes. Put them side by side. One really looks different. Why different? Because of the artisan? No. Because of the leather you use, that is also a technology. With different material, different result. Now, we use really very high technology in heart surgery. You know, most of the tools we use were innovated in places like NASA, especially the artificial hearts… OK, you control the technology. But in fact, technology controls you in some places. (CVS1, 46, male, public)

It should also be noted that technology is useful in commanding fields other than the operation area. The cardiovascular surgeon in the excerpt above talks about the artificial heart that replaces the organ itself as an example of technological device, while the neurosurgeon cited below mentions the benefits of an MRI device mounted in the OT. On-site scanning enables more precise removal of the tumors, increasing the success of the treatment.

> You do some surgery, in the field your eyes see, and think it is all right. Maybe, but there are places you cannot see. Blind spots, and so on. But, there is for instance this device called peri-op MR, an MR in the operating room. You put into and out of MR in the operating room. There you can see, without awakening the patient, and then continue. As a surgeon the field looks clear to you, but you can realize it is not with the MRI inside the operating room, at that moment. So it is good to have such equipment. I do not have the means, but I believe it would be better if I had. Similarly, there is a device called navigation. Now, you can say you park the car very good, but when car with sensors on the back first, and then that park themselves automatically, it is no longer meaningful to say you can park very well. Such stubbornness would be meaningless. So it is a good thing. (NS4, 55, female, private)

For technology to reveal and improve a surgeon's skills, the surgeon is also required to possess a strongly innovative attitude. Catching up with current technological innovation, adopting them in the daily practice of the craft demands serious effort from the surgeon; a conservative attitude, on the other hand, would be obstructive.

> As you use better technique, as the equipment gets better, your surgery also becomes more successful. That is, tool works, hand boasts, but of course a period is needed to adapt to it. And you should be open to innovation all the time. To innovation, to learning, you should not like take offence at it. (NS4, 55, female, private)

Given the intense part of technology in contemporary surgery, a surgeon resisting to change is "left out of the game". Although fewer in numbers, there also those who oppose the argument that technology makes a surgeon better:

> What does "a better surgeon" mean? Does he find a solution to my problem, or is the scar on my body smaller? God knows what happened inside. There is lots of comedy too. Guy says "I did this", but how could you believe? God knows what he did. You need to open up and look to see what he did. There are cases for laparoscopic operation:

> If the organ is long, gall bladder, appendix … in women, tumors in the ovary … All right, go in and remove, very practical. But apart from that, doing surgeries open is better. I am speaking against laparoscopy here. There are places to use it, and not to use it. Now, the man enters through the woman's vagina, removes the gall bladder. For what? Not to leave scars. For me this is impertinence. The time and effort you spend … That's the aesthetic side. No medical meaning. Doing something with laparoscopy does not mean better surgery. He is playing good with chop sticks. But when he plays, 3 to 5 hours go. (OBG4, 66, male, public)

Some surgeons, on the other hand, are not decided on whether technology really provides advantages for the surgeon. Especially, some surgeons approach the use of robotic surgery, both in their fields and in other fields, with a distance, and even doubt. Some even expresses the doubt by saying they would not prefer robotic surgery for themselves or their family:

> Colleagues are doing single by-pass with robotic surgery, in 6 hours. I do quintuple by-pass, the patient goes to the intensive care in 4 hours. My patient goes home in 5 days, his patient goes home in 3-4 days. That much is normal. His incision is this much, and so on … but when his patient bleeds he may die, to my patient I intervene. As such things happen, I see robotic surgery as very limited. Not to be aborted, but needs to be improved. Would you advise for someone close? Not at the moment. Not for the heart. (…) If such a thing happens to me, I give my word, I think the same for myself. (CVS5, 49, male, private)

Besides having doubts about technology, surgeons of older age generally emphasize that the surgeon is more important than the technology. A general surgeon, for instance, explains why the real ingenuity resides in the surgeon and not in the equipment, through the case of laparoscopic surgery:

> As technology improves, things get easier for the surgeon but it never ends. For example the robot emerges. Even in the robot there is a person doing the sutures. There is the person using hands. In laparoscopy you enter the abdomen, but if one does not know anatomy, could easily cut away the veins. In prostate surgery, there is this *resectoscope*,[61] if you do not know where you are cutting, the patient bleeds and dies. Technology helps. It makes things easier, more perfect. But real work is with the doctor, the surgeon. (GS3, 73, male, private)

Arguing that technology's role in a surgeon's performance of the craft can only be a small portion, ORT3 expresses that the vital part is the craft learned from a master:

> Technology's part in this work is 25%. Technology does not do the operation. Even with robotic surgery, apprentice should learn from the master. The device is not a

[61] *Resectoscope* is a surgical instrument for performing a resection without an opening or incision other than that made by the instrument.

> factory, it does not do it. (ORT3, 54, male, private)

Surgeons express the effect of the technology on the craft aspect of surgery in different ways. Some surgeons particularly emphasize that the "hand skills and carefulness" differentiates surgeons using the same technology. An urologist who believes that hand skill and carefulness determine both the artistic and craft dimension of surgery expresses his thoughts in this way:

> Watch 3 surgeons using the same technology. It looks much more elegant in one; hand skill and carefulness, let us not ever forget these two words, whatever method is used, technology or non-technology, they make the difference. In response to your question, I may say it decreased somehow. It homogenized the art more but did not destroy it. As for the craft, the learning of the occupational knowledge on a person, with results but not adding much art or elegance to the event ... This did not change much from open to closed. For everything is result-oriented. (URO2, 51, male, public)

Emphasizing that the use of technology in surgery always means the conduct of work on a new basis, GS1 uses the analogy of chess on a circular board to describe surgical craft with technology:

> It is still craftsmanship, you still do craft with the sticks but this has changed. Rules have changed. We can put it this way: The square chessboard has now become circular. With strange triangles at the corners, half circles. One does not know what pieces to place there. Plays perfect chess but on a square chessboard. Does not know playing on a circular board. (GS1, 45, male, private)

This expression is similar to the neurosurgeon's (NS4) statement above, emphasizing the need for the surgeon to be innovative. Innovativeness requires following technology and adapting it to the craft. This way, one can become a better surgeon through technology. With reference to the general surgeon, this means "playing chess on a circular board".

The points raised in this section reflect the existence of different approaches to technology and innovation among the craft community. A clear line of division emerges between more conservative attitudes that question the merits of new technologies and emphasize the more traditional features of the craft, on the one hand, and a more open attitude toward technology, considering new technologies as the advancement of the craft itself, allowing them to become better surgeons.

6.4 From Open to Closed Surgery: Skill Disruption and Generational Differentiation

Towards the end of the 20th century, surgery has gone through a transformation triggered by the technological transformations of the second half of the century. With the integration of information and communication technologies into medical technology, significant changes occurred. This happened first in diagnostics, due to the advances particularly in computers and video technologies. When the same technologies were applied to surgery, a variety of new devices and procedures emerged. Perhaps the most profound aspect of this transformation was the emergence of minimally invasive surgical techniques (MIS) -or closed surgery. As outlined in the sections 2.2.1 and 2.3, introduction and diffusion of closed surgery brought with it significant changes in almost all aspects of surgery –from the skills required to the organization of the OT or the training of assistant surgeons. Laparoscopy was previously an imaging technique, but when combined with digital cameras and ports with surgical instruments at their ends, it transformed into a new type of surgery. The recent development and diffusion of robotic surgery, also regarded as an extension of MIS, can be considered as a new phase in closed surgery. The existing debates on the comparative advantages and disadvantages of open versus closed surgery gained a new dimension with the inclusion of robotic surgery. Particularly in the fields of general surgery, urology and gynecology, where laparoscopic surgery has gained a wider usage, this is one of the hot topics. The aspects of this transformation are summarized in the following table.

Table 19: Comparison of Open Surgery and Closed Surgery

	OPEN SURGERY	CLOSED SURGERY
SKILLS	Judgment, good hands, tactile sensation, speed	Perceptual skills, hand-eye coordination, *computer wizard* perception
HANDS	Direct contact with the organs	Holding the ports
VISION	3D	2D, limited, loss of depth perception
INCISION	Large	Small
SENSATION	Tactile sensation	Sense of feel
FOCUS	Wide, holistic	Narrow, piecemeal, focused on organs not the body
PERSONALITY	Action-oriented, bold, aggressive, decisive, self-confident, obstinate	Teamwork, more cooperation, less improvisation
TRAINING	Master-apprentice relationship is strong, hierarchical	Weaker apprenticeship training, substituted with extra simulation courses
MIMICRY	Strong	Weak
AESTHETICS AND CREATIVITY	Strong	Weak
CONSERVATIVE VS. INNOVATIVE	Conservative	Innovative

Source: Author

In terms of how the surgeons position themselves in this transformation, sharp generational differences emerge between them. The surgeons themselves have also frequently emphasized the significant differences emerging among different generations of surgeons currently active. A three-fold classification of these generations –as traditional, transitional and newcomers- is convenient to demonstrate both the impact of closed surgical techniques on the surgical craft, as well as to analyze the responses given by surgeons at different age groups.

Traditional Surgeons (>55 years old): The generation of *traditional surgeons* was trained and had gained mastership exclusively on classical/open surgery. Their training was in the classical form of apprenticeship. Most of them worked for long years in public hospitals and university hospitals, and some also have academic titles.

The open surgery is characterized by the direct contact of the surgeon's hand with the inside of the body. In such an operation the surgeon can see the whole area of operation with naked eye, therefore has three-dimensional vision. The surgeon works directly with hands, and all skills are shaped accordingly.

After obtaining the level of mastership, and spending long time performing their craft, they have witnessed a profound transformation in their occupation. As the closed surgery techniques started to diffuse in early 1990s, they were faced with a choice to adapt to this transformation or continue the old ways. The emergence and diffusion of laparoscopic surgery came, for this generation, at a point of their career when it was difficult for them to shift to a whole new way of conducting surgery. First of all, the differences in skill were so profound that acquiring them would almost mean re-learning surgery, making it difficult for older ages. Secondly, these senior surgeons would have to learn these techniques together with their younger colleagues, who could be more inclined and ready to learn them. While these factors made it unattractive for them, the increasing preference for such techniques on part of both the surgical community and the patients put them in a difficult position. This was particularly the case for certain specialties, and sub-specialties, since laparoscopic techniques have become the norm in only some of the procedures. Among the surgical specialties covered in this study, general surgery, gynecology

and urology are the most affected, while the classical surgery continues to prevail in cardiovascular, neurosurgical and orthopedic branches.

When the responses of surgeons from this group are compared, on the other hand, this study finds different tendencies:

First, there are those who immediately adapted to closed surgery. They take a proactive stance and transform themselves in accordance with current trends. They are, however, limited in number.

Second, a large group consists of those who did not attempt to learn the new techniques. These prefer a conservative stance and continue, or insist, in classical open surgery; usually they also argue that this is the essence of the surgical craft.

Thirdly, there are also those, as described by the interviewees, who could not adapt yet do not explicitly accept it, and somehow pretend to be able to perform closed surgery. This way, while continuing with open surgery, they also try not to lose patients who prefer or demand closed surgery.

The following excerpt demonstrates how a cardiovascular surgeon, belonging to the traditional surgeons group, expresses the generational differentiation and the conservative stance of his generation:

> I still don't believe that the new methods developed on the basis of technology can ever replace our conventional or major operations. Sometimes technology becomes very attractive for people, and they use it, but when working on human life the limits of technology should not be forced too much. Because the mistakes that arise may not be reversible and no one has the right to end a person's life. … Technology cannot dominate man. Man dominates technology. Therefore technology cannot manipulate me. I can only use it in a position to practice something better, something easier. But technology cannot use me; I mean I still have the brain. I will direct it too. (CVS2, 54, female, public)

The disadvantages of closed surgery that are commonly raised by this group include the longer duration of operations, and the ultimate need to revert to open surgery in the case of complication. The most emphasized point is what they define as a vital risk, the high risk of losing the patient in case of a bleeding complication. In the following excerpt, an obstetrics and gynecology surgeon notes the vital risks included, while describing the attraction of laparoscopic surgery:

> *Open is better*. First, I see with my own eyes. I can examine every part of the abdomen. When something happens to the patient, you put your hand. Liver, spleen, kidney … In the closed, you see as much as you look. There is also the issue of cost and time. If the open takes an hour, the other lasts for 3 hours. At least twice as long. Besides, lots of material. Materials bought all the time. Why? Less complications. But when it [complication] happens, it is a disaster. For me, doing laparoscopic has no meaning. First, expensive. Second, takes too long and the remedy is open surgery. So you go back to the beginning. (OBG4, 66, male, public)

As a world-wide known surgeon over-skilled in organ –particularly, liver- transplantation, over 70 years of age, GS3 depicts his almost 50 years of experience in the following excerpt:

> I did more than 2000 liver transplantation, 3000-4000 kidney transplantation … In total, I must have made 50,000 operations. After all, I am a surgeon for 50 years. I am also a pediatric surgeon. (…) but I did 2000 liver transfer, when I came here from the United States it was 1500, and we did a further 500 here. During training, I did 180 in Pittsburgh. So that is around 2000 liver cases. I believe I had a good surgical training. (...) As technology advances, surgeon's work gets easier but never ends. For example, the robot comes. *In robot too there is a human doing the sutures*. There is a human using hand. In laparoscopic surgery you go into the abdomen, but someone who does not know anatomy just cuts away the veins. (…) With laparoscopy they remove the liver, and place it. In my time, I don't do it, and I cannot. Because I don't have laparoscopy training. (GS3, 73, male, private)

Surgeons belonging to the open surgery tradition sometimes ask help from their students, as they have difficulty in adapting to new technologies. An orthopedic surgeon, ORT4, relates the issue to outsourcing, but also emphasizes the cooperation between the traditional generation and others:

> In many centers, our great professors, let's say X, a patient comes. They say there is a problem with the hand. He says I can do it, and you pay me this much. Then calls [me], says "Hello son, there is an operation here, come". […] He makes me do it. [He says] I wanted this much money from the patient. He tells the truth or not, that depends on his sincerity. "I give you this much, will you do it", he asks. […] this is also an inconvenient situation. Because patients now start to ask. They come to me, I recommend an operation, then asks "you will do the operation, right?" This is becoming known in the market. (ORT4, 45, male, private)

An urologist accounts a similar situation, in relation to age, stating that surgeons over 60 have difficulty in catching up with technological innovations:

> After 60 it does not work. For instance, a public hospital purchased a robotic surgery device. They do not touch it. They just posed for pictures, and that's it. This is an effort… That energy is lost. If he is ambitious he can do it; but if he is not ambitious, he thinks: I am a 60 years old professor. There are younger ones, my son's age", me for example. "How can I compete with them? I have a reputation. I will have to deal with someone who had 500 operations while I have only 2". (…) In robotic surgery he turns

> into the most junior. Let us say he is the most senior at the school, but has fallen back in a field. The associate professors surpassed him. (URO1, 47, male, public)

The same circumstances existed for GS when laparoscopic surgeries began. Surgeons over 60 similarly find it difficult to adapt to technological innovations, leaving innovativeness and learning to the younger generations, their apprentices. The following is an account of a similar experience:

> Our surgeon professors, who do not know laparoscopic surgery and perform open surgery, they could not get used to it. The man is talented, he can remove that gall bladder better than me, no doubt. But those over 60 and those that retired, they could not get used to this. Those professors fell back. They suffered from it both morally and financially. Once a professor called me to private, for a laparoscopic operation. The patient wants closed surgery. The professor cannot do it. I am not working in the private, so he cannot refer the patient to me. Then says, "Son, I am going to hospital X, come and we will operate together". He doesn't tell me. You go, and he puts the laparoscopic surgery before you, and says "You do it". Because he can't do it himself. The patient does not pay for the open surgery, pays for the closed surgery but he does not know the closed operation. […] And he feels lowly for that. This is bad. Now, you are doing a work, anything, let's say you are a grocer, and it changed. Those old cases are no more. No more oranges, apples. Strange things happened. (GS1, 45, male, public)

In summary, traditional surgeons are generally over the age of 55, and completed their training in the conventional master-apprenticeship relationship. They are usually informed about technological innovations, and use most of them. However, in the case of closed surgery, they cannot apply it in their craft. In that sense, they take a conservative occupational stance.

Transitional Surgeons (35-55 age range): The surgeons comprising the transitional category were either continuing their residency or had recently finished their training at the time when closed surgery techniques began to diffuse and proliferate. This is the defining characteristic of this group, which placed them in a particularly advantageous position. For a number of reasons, they were able to both benefits from the mastery and experience of the older generations while easily adapting to the new technologies:

First of all, they had the full conventional training experience, with all the stages including "watching hands" in open operations.

Secondly, they were at an early stage of their career when closed surgery became popular; so they were open to acquire new skills. They also felt it indispensable, as

they could anticipate that new techniques would increasingly become the norm during their career.

Finally, compared with older surgeons, they were more familiar with digital technologies, computers and computer games, and more open to exploit such tools.

This group can also be further divided into two separate sub-groups, again with respect to their use of new surgical technologies. The first sub-group comprises the 45-55 age range and the second the younger 35-45 age range.

> - The surgeons in the *45-55 age range* comprise those that, in a sense, have caught the train at the last minute. They are significantly experienced in open surgery, and were able to add laparoscopic techniques to their repertoire.
>
> - The surgeons in the *35-45 age range*, on the other hand, have usually spent their childhood playing with *Atari*s and other computer games. Compared to the other sub-group they were closer to laparoscopy, as they were still in the stage of training when the technique gained popularity in Turkey. So, during their residency they were aware of the advance of closed surgery, and many of them found the chance to watch and experience it. Familiarity with computers and video games is commonly mentioned as a positive factor for this sub-group, making them more adept at using the ports of the laparoscopy (as they are similar to joysticks), or following the movements on a screen. Laparoscopic techniques require thinking, imagining and operating in a *two-dimensional* space. Familiar to playing and working on a computer monitor, they were able to *transfer* these skills to working on the body reflected on a monitor.

The surgeons in the 35-55 age range could be considered as a *transitional* group, for they were compelled to make this transformation from a training based on open surgery to performing closed surgery. They are skilled in both open and closed surgery; this means that they can deal with complications in closed surgery that would require converting to open surgery. On this basis, we can consider this

generation to be more advantageous and more skilled compared to both older (traditional) and younger (newcomers) generations. Trained and experienced in open surgery, yet also able to perform closed surgery, they can more easily shift from scalpel to ports, and back. As they have extra skills and knowledge that their masters do not possess, they are consulted by older surgeons. At times they become master to their masters.

This generational differentiation is also stated by transitional surgeons, as it was the case with traditional generation. URO3 explains the generational difference by referring to computer wizards, associating it with perception and skill:

> I think a 35-year old can do this job great. You should see this too, please: My generation did not grow up with television games or else. There were no playstations. I believe these develop a different perception and skill in people. Our ability to use computers is also not the same with later generations. They are more computer-wizard … We are not so. Therefore you can resemble this to that. But what happens: Practice elevates you on top of your past experience. [To know open surgery] is very important. The problem with those 35-year olds is that they have never mastered anatomy, what could happen there, as much as you. But for you, there is nothing left to see about that operation, you know all that could happen. So building upon that is easier. (URO3, 53, male, private)

It can be argued that transitional surgeons have managed to turn the open-closed conflict to their own advantage. Those who mastered in both open and closed surgery are the most competent surgeons. Referring to his apprenticeship, orthopedic surgeon ORT4 describes the characteristics of his generation:

> We are like this: We have seen both sides. I think we are the last generation trained by such masters. I mean we saw that. The hierarchy, the notion of professorship, the discipline, the master-apprentice relationship, we have seen. Younger ones will not see those, I mean they are not seeing it already. (ORT4, 45, male, private)

In the acquisition of surgical skills, the focus is on the master-apprentice or the superior-subordinate relationship, as noted by ORT4, while for learning and using technology, notes GS1 and URO4, the focus is on knowledge.

> Occupation has changed. How? On the basis of technology. Dependent on technology. We have become a technology-dependent occupation. Today, in order to perform laparoscopic surgery, I need to learn a lot of things outside surgery. I need to acquire technological knowledge. (…) That was its nature, hands was its nature. Laparoscopy became the routine for us in 1990s. Now we are operating by looking at a monitor –the two-dimension, three-dimension stuff. I am watching TV. I am operating looking at a television. Look, how strange … My hands are here, monitor is there. I am looking at the monitor. (GS1, 45, male, private)

Additionally, in response to the question "is the master-apprentice relationship affected by technological development?", some of the interviewees describe the process quite strikingly. URO4 defines the impact as "traumatic":

> This is really a big trauma, ask it in America, ask it in Europe. My biggest advantage: I was an assistant when people performed open surgery. I learned laparoscopy myself, going abroad. Now I am performing robotic surgery. (URO4, 47, male, private)

A neurosurgeon, NS1, notes that robotic surgery has very limited use in neurosurgery; but adds that if it becomes effectively used in NS, he may even postpone his retirement. Because, he expects he could continue to perform his craft with the help of robots at the age of 80, when his hands no longer work but his brain does:

> I am very interested in robots. I can delay my retirement with the help of these robots. Therefore, I need to prepare myself for the robots. At the age of 80, if your brain is still functioning, you have the experience, the knowledge, but maybe your hands will not carry out the job, there robot can help you. The current robot is ineffective for brain surgery. But it will be. I am a close follower. I will be among the first purchasers when it comes out. (NS1, 50, male, private)

The breakthrough effect of laparoscopic surgery replacing the open surgery has been discussed above. The traditional surgeons consider the shift to two-dimensional vision as a disadvantage, and state that it changes the basic craft nature of surgery. The transitional surgeons, on the contrary, regard it as an advantage: Because, the surgeons in training who are supposed to follow the operation have a better view with the monitors. In open surgery, they need to stand by the operating area and bend over in order to see, which cannot be possible all the time. In closed surgery, however, they follow the procedure step by step on the screen, and besides, they can rewatch the recorded operations. This also enables the surgeons to watch the records of the operations they performed, and thus analyze their own performance. This is a how an urologist describes this advantage:

> We do not speak about learning open surgery any more. (…) It was more significant in the past. Now, actually, the camera has become an indispensable part of training. You see everything. Previously you were trying to see through a small opening, bending over, and so on. Now it is not that way. You do not have to be part of the operation anymore; it is sufficient that you watch and you are smart. (URO3, 53, male, private)

Another example can be found in a neurologist's account:

> With the help of technology, in 8-10 years I can say, things changed in that sense. (…) With the computer technology, especially the imaging technologies in medicine, we began to have more information through imaging systems. MR, CT, ultrasonography… the adaptation of these to the operating room, these provided a lot of advantage for us. Some integrated imaging system on our microscope, such as angiography on the microscope, or seeing tumor by painting it and passing through various filters, these have affected. It got shorter, the operating time. We do it through smaller places. (NS3, 52, male, private)

Another urologist offers a different description of this open-closed differentiation: being in contact with the body in contrast to being within the body:

> [In robotics] you are inside the body. In open you are in contact, in robotics you are inside the body. Completely inside, inside everything. Very different. As I said, it differs from doctor to doctor. I feel that I am touching, more than the open surgeons. I know this. (URO4, 47, male, private)

Although urology is a field where robotic surgery is most frequently used, one urologist (URO3) also notes that with robotics surgeon loses the touch feel that is so valuable for the surgical craft. In open surgery, in a moment of indecision for instance, the related part or the organ would be examined by hand, the changes in temperature, in softness, or the existence of a mass would be noticed by hands. It required years of training to acquire this tacit knowledge. The extremely magnified images provided by laparoscopic cameras began to replace this mastery of hands, which is a cause of concern for the traditional generation. One urologist, who is a part of the traditional generation but managed to adapt successfully to closed surgery, describes this radical change with concern:

> Of course there has been a difference of dimension, a difference of perception. Most importantly, *you saw that you could give up something very valuable: the sense of touching*! I mean, it was everything for you, you were taught that way. *You used to be praised for having eyes at your fingertips* … That you commanded everything with your hand, you felt everything with your hand, this has gone with robotic surgery in which you don't need to see everywhere. Do you know what came instead? An unbelievably detailed vision! And suddenly you are being imposed that seeing is everything and touching can be left out. This is no small change. (…) You may be at the side or in the corner of the room. Your assistant is by the patient and you don't see exactly what is going on. You have no contact with the patient. These are all aspects of the issue, but think why the robot was developed? In fact, in order to obtain telemedicine … So that some of the deaths of the US soldiers in Afghanistan, in Iraq that are a result of bad health care can be saved by providing a surgeon in Johns Hopkins to operate the man on the ground in Iraq, that is why all these ideas were developed and realized. (URO3, 53, male, private)

In the robotics surgery, let us remind, the surgeon is submerged in a console apart from the patient, without any physical or visual contact with the patient. This is also different from laparoscopic surgery, in which the surgeon is by the patient's body, directly manipulating the ports inserted into the abdomen. Therefore the hand-eye transition is more emphasized in the case of robotic surgery. The following is the account of the same change by a surgeon belonging to the transitional generation. The difference in tone with the former excerpt is noticeable. The radical or traumatic change is more emphasized by the former, traditional surgeon, while the change is described more in degrees in the following:

> When we go inside, it's the same thing, doesn't matter. Here the vision is enhanced. The visual sense improves and it shows you a way. Your eyes instead of your hands! You say this tissue is hard, I should remove it. That sort of senses improve but otherwise your tactile sense is reduced, that's all. You look, but eyes were secondary, as the hand was mostly there. Let's say there is a hard mass here, could it be a tumor, you say. But here you see. Your eyes take a photo of the area. Your eyes tell you there is a problem there, go from down, come out from top, it directs you. I believe other senses instead of hand feeling become active. (URO1, 47, male, public)

The most common criticism directed by traditional surgeons at closed surgery is that it keeps the surgeon apart from the patient, eliminating the physical contact. Transitional surgeons, however, do not consider this distance as a disadvantage. Besides, a tendency can be observed in the transitional generation toward considering the skills of their masters as "obsolete", since they are limited to open surgery only:

> I think it is a disadvantage. Because in surgery, not everything fits. You start with open then convert to closed, or start with closed and convert to open. In the end, this has to be learned. If the person learned only open, then it is bad. He stands still, because he does not know. (ORT4, 45, male, private)

> Therefore, maybe we should get rid of the old type of thinking. In fact I have adapted! (URO3, 53, male, private)

The transitional generation is also critical of the coming generations, however, for being skilled only in closed surgery. They consider this limitation as a serious shortcoming.

> When you say to whoever comes in with a headache, "go take an MR", that does not work. Of course we fail to explain to the new generation. To those older ones, they did not have that technology anyway, they themselves … We saw both of them. Therefore, as we combine the two our generation is more successful. The new generation has to accept that in order to become successful. I mean, they should say, "I need to learn good neurology". That is, examining the patient neurologically, form the diagnosis to a certain extent in the mind, then say "I should send you to the laboratory, that is to MR or CT". (NS2, 66, male, private)

To conclude, that open surgery forms the basis of all surgery is beyond debate. The advantages of minimally invasive techniques notwithstanding, surgery cannot be properly conducted without having the open surgical skills. The basic reason is that in case of complication, such as an internal bleeding, converting to open surgery is the only option; and as it is clear from previous sections, open surgery constitutes a separate way of conducting surgery. In this context, the transitional generation of surgeons is at a particularly advantageous position compared with both older and younger generations. They have managed to adapt to minimally invasive surgery much easily than members of the traditional generation; yet, they have also acquired all the skills and tacit knowledge required for open surgery, unlike the younger generations who are having less and less opportunity to acquire these.

Newcomers (<35 age range): The youngest and less experienced surgeons, called as newcomers in this study, are juniors in all senses of the term. Through their childhood, they are more used to the information and communication technologies, making them more adept at learning closed surgery. Learning to work two dimensional images on screens is easier for them. Yet they start their career with a noticeable handicap, as a result of their limited chances to develop the skills required for open surgery. They are being trained in a time when the technological changes also affected the systems of training, when the conventional method of "watching the master's hands" is becoming obsolete and a technology-intensive surgery is becoming predominant. The factors are not limited to technology itself, however. The increasing general demand for closed surgery also limits the chances of integrating open surgery into the training systems.

At this point, the current policy of transformation in health care, as discussed previously in chapter 3, may emerge as a factor. As a result of new limitations and

payment systems, the extensive flux of experienced and reputed professors into the private sector caused a significant impoverishment in university hospitals and other public training and research hospitals. Given the limited opportunities for such training, new ways and solutions will have to be developed. Currently, the response of the residents is to close this gap through extra activities in the form of thematic courses, or simulation trainings. The following is from a conversation with a female resident neurosurgeon:

> I am in my third year in neurosurgery residency. I entered with a very high point. I am supposed to be at the oldest medical school of Turkey … Yet there are so few neurosurgeon professors at the department whose hands I could watch. I can follow just one professor. What we hear from elder ones (*abiler*) is that previously you could watch the hands of many professors. Thus you could see "different hands". This variety should be. Now we don't have that chance. I go to simulation courses on the weekends, and pay on my own. I have to. How else am I going to be a neurosurgeon? (Field notes, 2012)

The concerns of the traditional surgeons about the prevalence of technology resurface in their experience with the newcomers, exemplified by the words of CVS5:

> For instance, you tell the assistant to examine the patient. I did it yesterday, "check the liver and say how many centimeters bigger", and so on. Form the very first moment, the way she puts her hand on the patient is wrong. When we examine a patient, there is an artistic aspect of it. There is a technique of touching the patient, a way, a purpose. If you are feeling some part, there is a purpose. You can't pinch a liver the way you do the abdomen. There is no such method, no such examination method. "Do it, my child", she wouldn't. She immediately answers, "*hocam*, the liver is this big in the ultrasonography". I say "*Kızım*", "do it with your hand". The report of the ultrasonography, what if he couldn't do a correct assessment, what if that is also an assistant, and couldn't assess and measure the ultrasonography well, you trust him. You should trust yourself, check it, whether it is below the limit. As technology enters, there may emerge a paper-bound physician. That is the disadvantage. (CVS5, 49, male, private)

Another surgeon, this time an OBG, uses the expression "book reading assistant" for younger generations, while seeing his own surgery as art:

> Everyone needs to be artist. One should make a diagnosis by looking at your face, should examine and understand by hand. These kinds of things are no more. Even when they are taught, the system forces otherwise. Now the assistants read books, and think, "this is old, cannot know much". One day they realize, but then it is too late. (OBG4, 66, male, public).

Another surgeon makes the same complaint about the younger generations:

> Young generations are more result-oriented, they have more trust in technologies that are result-oriented. They do not think however that technology may also mislead them. (CVS5, 49, male, private)

Despite the ongoing debate on its pros and cons, there are institutions that specialize in robotic surgery, for instance in cancer treatment, where all operations are robotic, and open surgery is discarded. On the one hand, this is significant in terms of predicting the future course of the diffusion of robotic surgery; but on the other hand, the newcomers who are to be trained in such institutions are regarded by older generations as deficient in grasping the surgical craft and its mentality:

> In a clinic in America, only robotic surgeries are performed and they never do cancer operations open. […] Then they have to teach the assistants according to the robotic technology. […] Then the assistant cannot experience that apprenticeship you mentioned. Apprentice level starts with the robot, the technology carries. Since technology carries, doctor becomes completely dependent on technology. Just say, I can now go to Kayseri or Kırşehir, to a small town and conduct open surgery, but if you are dependent on technology, you cannot. Now, there are no more open renal calculus operations in Turkey. Do you have to? No. But you should be able to do it when you have to. (URO4, 47, male, private)

Another point about such a process is the change in master-apprentice relationship. In high-tech robotic surgery, one urologist claims, there is the possibility that the apprentice will always remain an apprentice, while master becomes a better master:

> This time there are good surgeons, good assistants. Apprentices stay as apprentices. I know that in [a public hospital] Dr. X does all of them. And those with him, they just assist. He does not teach any of them, or let them do. That is a matter of understanding. That guy will always remain an apprentice, and the other will always be the master. (URO4, 47, male, private)

While the interviewees of this study do not include members of this generation, concerns about such deficiencies in the current training programs have been raised by both traditional and transitional surgeons. The issue has also been a topic of conversation with medical students and young surgeons during the field study.

Taken as a whole, the generation of newcomers could be considered as the first generation on whom the direct and full effects of the new surgical technologies would be best observed. They will be starting or have started their career at a time when minimally invasive surgery has become dominant, with all its benefits and

downsides. Whether the craft aspect of surgery will be eroded, turning surgeons into mere technicians overlooking machines, will continue to be a topic of debate. One of the interviewees has a more certain verdict on the future of the occupation:

> First comes technology, and then comes hands. This means the occupation has died, gone. The craft called physician disappeared, turned into technician work. (OBG4, 66, male, public)

To conclude, currently active surgeons in Turkey, and those at the level of apprenticeship, manifest striking differences among themselves with regard to their relationship with surgical technologies. This is, of course, a reflection of the transformation of surgical technology itself, with the required skills changing through time. This is also a result of the response of the surgeons to these changes, which is also shaped by their relationship with technology in general, their life experiences starting from childhood, and their level of mastery in the craft.

The imminent connection between closed surgery and the information and communication technologies is obvious. Therefore, it would be reasonable to conclude that the three generations observed in the field study is a summary description of how the ICT revolution affected the surgical craft. The ICT is transforming surgery and surgeons are compelled to adapt to it. How –and how successfully- surgeons adapt to it, however, depends on various factors, not the least the extent to which the surgeons are able to acquire the new skills.

Another question that arises in this context is related with the craft dimension of surgery. Regarding "medical profession" as a whole, there is a significant amount of work arguing that the medical workers are increasingly deskilled, even proletarianized. Surgeons, however, are rarely mentioned in these studies. There are studies focusing on surgery in particular; concluding, for instance, that there is an intensification of labor in surgery as a result of new technologies (Johnstone, 2005) but such studies similarly focus on the workers in surgery other than the surgeons. Based on the findings of the field study presented here, it can be concluded that surgery continues to be a work best defined as a craft, with the surgeons occupying a dominating role in the process of operation, since their manual and mental skills

continue to be dominant. Throughout the interviews, there are cases where surgeons complain about technology becoming too important, sharing some of their roles, but almost none of them –with one exception- expresses a feeling of insecurity, or is wary of losing their prominent position. They generally tend to view surgical technologies as tools that assist them or improve their mastery.

This may coincide with Satava's (2008) predictions on the future of surgery, that the robots are expected to replace the scrub nurse and the circulating nurse, but not the surgeon. On the contrary, the surgeon finally gains complete control over the surgical process, from the beginning to the end:

> Soon the surgeon will become a solo-surgeon in the truest sense of the word, controlling the entire operation from the console. Because there will be no people assisting the robot … the surgeon can sit at the console just outside of the OT (looking through a glass window) and there will be no people in the OT. (p. 874)

This is of course a futuristic vision that is mostly speculative. The main point regarding the contemporary position of surgeon, however, coincides with what has been discussed up to here. The surgeon transforms in order to adapt to new technologies, but does not loses prominence. A useful analogy at this point could be between the surgeon and a pianist, who masters the classical skills, and with the introduction of computerized keyboards and other electronic instruments, becomes an electronic musician. The pianist does not lose the tactile skills, but starts using new instruments in her work.

In conclusion, it should be reminded that the aim of this chapter was to focus on technological change and its immediate impact on surgical craft, and for this aim the transformations related to the role of state and market forces in healthcare and to the attitudes and expectations of patients were mostly subsided to the background. As pointed out from the very beginning, however, the interaction between surgical craft and technology does not occur in a vacuum. On the contrary, this interaction takes place within context, affected by various social factors and actors that act in harmonious or conflicting ways. In order to place surgical craft in this broader context, the next chapter will analyze the trends of change in the three categories of

state, market and patient; and assess how surgical craft is affected and how individual surgeons adapt to these transformations.

CHAPTER 7

TRANSFORMATION OF HEALTHCARE SYSTEM, MARKETIZATION AND SURGICAL CRAFT: HOW DO SURGEONS ADAPT?

The process of the transformation of healthcare, as outlined in Chapter 3, is a major topic of the last decade, and the profound impact of this process was also observed throughout the field study. A significant point that emerges from the findings is that the way surgeons are affected by this transformation differs in comparison to other medical occupations. Surgery's craft character and its specific interaction with technology, moreover, emerge as significant factors in this aspect.

For analytical purposes, the way surgical craft was affected in this process will be analyzed in three separate categories. The purpose is to situate the surgical craft-technology relationship in a broader social context and demonstrate how various social factors intervene to shape the intensity and diffusion of surgical technologies, as well as impacting upon the way surgeons perform their work.

The first part will focus more specifically on the governmental policy of transformation in health care. The problems and issues related to public and university hospitals constitute the major topic of interest here, even when the interviewed surgeons are working in private hospitals. The second part deals with the increasing mobility of surgeons among hospitals. This is mostly a result of the privatization process that started much earlier but intensified in the last decade. Finally, in the third part, observations regarding the patient's changing role and its impact on surgical craft will be outlined.

The chapter will be concluded with a final section that brings the findings of Chapters 6 and 7 together and summarizes the changing attitudes of the surgeons in response to the transformations discussed in both chapters. The question that this concluding section aims to answer is how surgeons adapt to the extensive transformations in their environment and how the craft character of surgery determines the ways of adaptation taken by different surgeons.

7.1 Transformation of Healthcare System: A Decline in Surgeon's Autonomy?

The significance and actuality of the Healthcare Transformation Program carried out by the government since 2003 became visible during the field study, since the topic was frequently raised by the surgeons in the interviews even before they were asked questions about it. The comments of the surgeons on this topic usually focused on a number of issues: The rhetoric of the politicians aimed at discrediting physicians; the performance-based payment systems; the cases of malpractice; the effects on medical education and training; and technology investment in public hospitals.

In the public debates surrounding the healthcare policy, a discourse towards the discrediting of the physicians as a category was frequently criticized. Particularly, under the heading of knife payment (*bıçak parası*) surgeons were targeted for their exploitative behavior towards the patients. What is commonly called as knife payment in Turkey refers to extra payments that the surgeons demand from patients, in return for conducting an operation, scheduling operations earlier or similar benefits. The surgeons tend to express ambivalent views on the existence or legitimacy of such extra payments. They offer two explanations for this. On the one hand, they note that patients are naturally tempted to give gifts to the surgeons:

> Of course defects appear in some part of the society. Knife payment, for instance, has been attributed to the physicians because of the defects of the system. Were there those who abused it? Of course. (...) As they are regarded as knife payment, I don't accept

> that kind of things. They give a present, but they also bind you. We are doing a critical job, with many risks. (...) I do not accept but they just bring it, then I become obliged to take it. They bring things from their hometowns for instance. Breads, eggs, honey, especially *cevizli sucuk* from Kastamonu and its vicinity. (URO1, 47, male, public)

A second line of explanation is that the surgeons are tempted to such behavior because of the system they are working in: The low level of wages, intensive workload, and other sources of scarcity. So, they think that a major problem is the undervaluing of the surgeon's labor by the state. Even surgeons working in private hospitals raise this point to explain and justify why their colleagues in public are forced to such behavior:

> This might have been established that way, but the person in Anatolia trusts his/her body to a surgeon ... When leaving this body to the surgeon's hands I want him to do the operation with utmost care. ... That is in part a payment for ensuring "do my operation in the most perfect way". The surgeon will do anyway, he is under the oath. It is not forcing someone who cannot pay, "if you don't pay knife payment I won't operate". But of course there is a limit to the number of operations a surgeon can make, I am saying for my colleagues, you know. But on the other hand, can an operation be performed without any payment? I don't mean knife payment but some kind of remuneration, I am not sure actually. And if I am going to be sentenced to pay trillions of lira as reparation because of what we call malpractice, then I have to be getting a serious gain from that operation. (ORT1, 48, male, private)

A significant aspect to this issue was the instrumentalization of an antagonizing discourse by the politicians and others towards the physicians. Surgeons complain about stigmatization, being accused without distinction.

> We have a prime minister saying "doctor *efendi*, take your hands off the people's pocket". Of course there can be rotten apples in any basket, there are dishonest people among the doctors too, those that receive envelopes, those who receive knife payment. I do not say no to that, but is it fair to smear hundreds of thousands of doctors for that? Previously people used to bow in front of the doctor. Now they walk over them, beat them. (ORT2, 65, male, private)

In recent years, there has been a trend of increasing violence from patients and their relatives directed at the medical staff, particularly in the emergency services but also in other contexts, and sometimes directed at surgeons. The surgeons interviewed believe there is a close relation with the stigmatizing discourse used by the advocates of transformation and the violence directed at physicians:

> They discredited the physicians too much in the transformation. When did the ministry recognize it? When doctors started to be beaten and killed in policlinics; then the ministry realized that physicians were extremely discredited. ... I think now they are repairing it. At least to earn the trust of doctors. (...) really absurd things happen in this

> discrediting of the physician, a peasant woman comes, for example, and says: "you will examine, I don't care what"... For example, she comes to take a receipt for her father, and the doctor says "I can't write it at the absence of your father, I should see him", then she says "you will write it, no matter what". It is the state that should be ashamed for allowing such things to happen. The person has no guilt in it. (CVS3, 61, male, private)

An essential pillar of the transformation program includes the introduction of performance-based payment systems. Applying performance measurement in surgery, however, is a highly controversial issue. From the very start, this system was expected to increase the level of unnecessary procedures; and currently the changes in statistical figures point at such unexplained increases in diagnostic tests, small surgical procedures, and others. Obviously, the complex technologies such as those used in diagnostic are strategic in this respect, enabling both surgeons and hospitals to benefit from greater use of these devices. This point is especially raised by the surgeons interviewed:

> With the coming of performance, suddenly endoscopy applications increased in Turkey. They gain performance [points] as they do it. And what they earn is 50 liras, 17 liras, 38 liras. In order to earn more they conduct more endoscopy. Who led to this? The system brought this... But they have to do it, they have to earn. (...) So everyone wants something. The people are told they will be treated free, doctor says I will charge fee, earn money. The Hippocratic Oath gets lost in the shuffle. Just imagine, you are doing something unnecessary to the patient. I wouldn't let anything unnecessary applied to me, some tubes inserted from here or there, unnecessary surgery performed. I see a lot here, the patient comes, "*Hocam*, I am diagnosed with varicocele", there is such a disease, varicosis of the veins in testicles. He was told "you have to be operated or you become infertile"... First, I examine the patient, he has no serious varicocele. Second, even if he has varicocele, you need to discuss this with the patient. I am doing the right thing but at the same time discredit the decision of a doctor. Am I in fault, I don't know. He wants to operate for money. So where is the Hippocratic Oath? (URO4, 47, male, private)

There are also others who consider evaluation of surgeons on the basis of performance in more positive terms. According to them, performance measurement provides a criterion to separate those who work from those who do not. The following statement of an urologist working in a public hospital presents an example of such arguments:

> There must be [performance evaluation]. But it is not everything. Not everything should be done for pecuniary expectations. Yet doctors who work and those who do not should be separated. A doctor examines 100 patients per day, while the other sits back. This is not justice. So arranging their money is through performance. These need to be revised. Looking at the result, it is correct, logical, performance should be everywhere. But where there are defects, revisions have not been done good. (URO1, 47, male, public)

One downside of the performance system is closely related to its connection with the issue of malpractice. There is a tendency towards avoiding hard and risky cases. These cases may bring greater performance points, but given the increasing power of patients to sue for malpractice in cases of complication, surgeons tend to avoid such cases.

> Performance is completely baloney. Just empty talk, there is no such thing. For the performance they will get from that serious operation, they can make up with 2 much simpler operations. Thus no one wants to bother with serious operations. It's not worth it. And when things go wrong, there are lots of troubles. Leave aside the compensations and all that, you have to face the relatives of the patient. They chase and beat you. (ORT2, 65, male, private)

The increase in the court cases of malpractice is a significant development that emerged as part of the transformation program. These cases resulted in the emergence of a new specialty in law, with lawyers specializing in these cases. The number of surgeons facing malpractice cases is growing. The increasing use of technology by surgeons is partly a response to this change in the occupational practice. The issue of malpractice is one of the topics that emerged spontaneously in the field study, without any questions asked.

> Technology develops, and they shall earn money. The insurance companies in America brought it to this situation. We did not have it. They pushed it, and pushed it, all the insurance companies came together. Then came this malpractice. There is accident, and there is intent. Which doctor would do it on purpose? Now everyone is afraid. We shifted to defensive medicine. We could not do that much, but the young ones did. [The woman's period] is late, immediately write a test, check this hormone, and check that. No looking at the woman and no asking why she is not having period. First they guarantee themselves. Tests, devices, all are very expensive (OBG4, 66, male, public)

Surgical branches deal with much more risky cases compared with internal branches, and there is always the risk of death or severe harm. This makes surgery a major target of malpractice cases, and brings surgeons in opposition to lawyers. Lawyers, on the other hand, increasingly specialize in such cases, since there is prospect for significant amounts of compensation and revenue:

> Today, lawyers and their brokers are wandering in the venues of public hospitals. Especially at the corridors of state hospitals, university hospitals, serious troubles are happening. A friend of mine, who is the rector of a university, told me "currently there is no single doctor in our hospital who is not sued". It is that bad. And now comes the obligation for private insurance [against malpractice cases]. This special insurance will increase the number of cases even more. As I just said, they will just stand by saying

> "hey doctor, nothing will happen to you, let the insurance pay". God willing, we will not fall into a position as miserable as in America. (CVS3, 61, male, private)

The reaction of the surgeons to this issue is similar to the response to performance evaluation. Doctors tend to avoid risky cases, considering their own interest:

> You issued a law; it is hanging on our head. This leads surgeon to passive resistance. No one would take risks... A patient with a complex case, coming to the emergency, why would I intervene? (...) Previously, that surgeon would think of taking the case and operating immediately. In America, no one cares about something that is not his work. The system is about who is to be sacrificed that day. This is not exactly the case in Turkey, of course, but it is going to end up there. This is the risk here (...) You ask the doctor "how many hours you are working, doing what after the shifts, and so on". I mean, fix them. Fix everything. My wage too, you know ... Now when a person sues you, that is a 100 billion liras case. Let's say, dude I am earning 1800 liras, what 100 billion? (CVS1, 46, male, public)

One of the disturbing aspects of malpractice regulations for the surgeons is that they believe it decreases their credibility. They already believe that they have lost in terms of status in the course of the transformation program. With the malpractice cases being easily opened, and even used against the surgeons, however, the position of the patient is enhanced vis-à-vis the surgeon, and this creates situations that they are not familiar:

> In the past, it was a very reputable occupation. Now it is an occupation fast losing reputation and increasingly faced with threats. Through lawyers; the issue of malpractice. It is an occupation with increasingly growing threats. You are being lowered to the position of a man with a potential to rob. (CVS1, 46, male, public)

> A change that appears with the transformation in health is the increase in malpractice cases; right or wrong. The minister of health is on the side of the patients. There are two sides to it: Physicians and patients. Physicians are considered as potential criminals, on one side. Something happens, then immediately complain! Whether it is sound or baseless. I mean without ever questioning if the patient has any part in it, things like completely investigating, punishing the physicians, questioning the doctoring practice. (...) This is one of the downsides that arose with the transformation in health. I mean, this is what we call defensive medicine. (NS4, 55, female, private)

For the surgeons, the most severe problem with the transformation program is the increasing anxiety and unhappiness they feel about their work. They believe that they have been turned into a target by the government.

> Physicians are definitely being exploited. In many places, their personal rights are violated. (...) Both the prestige and the personal rights of the medical occupation are affected by this. Here, when the group in one side of the scale becomes very unhappy, this is also reflected on the group they will serve. Unfortunately, this is not taken into consideration. Some compromise should be found in some issues. We are not the

> enemies of the people, then again the minister of health using such an offending terminology, a terminology that I cannot accept (...) I mean, we cannot think of anything else than our concerns for the future. We stopped thinking of research and whatever. All the teams, all the research institutions, all went upside down. All dispersed. They are not easy to establish, they are results of years of labor, years of accumulation… All went upside down. (NS4, 55, female, private)

Some repercussions of these transformations in healthcare will take time to be observed. Yet some of the surgeons, like NS4, believe the negative results will appear in time and patients will be harmed the most:

> Patients are going to suffer the results five years later. Believe me, they will. I am also concerned with this course of things as a patient. I have kids, 2 kids. I could not advise my occupation to them. I did not, and they did not want anyway. (NS4, 55, female, private)

There have also been profound changes in medical education and training. As will be discussed in the next section, there are serious concerns about the future of medical education, especially with regard to the master-apprentice relationship, which is a basic component of surgical craft. With the transformation in health program, a series of concerns are raised. Especially with the flux of surgeons away from public and university hospitals, the decrease in the number of professors is reflected in the decrease in the number of operations, in the decrease in variety of courses offered to the students, and most importantly in the loss of role models for prospective surgeons.

> Medical education is in a mess. This is my personal view. It was not very bright in my time either. Now it is in a much worse condition. (...) Medical school students are losing the role models in front of them. They are going away. This is a master-apprentice work. Really it is. This is also valid for medical sciences, for everyone. If you increase the quota of the medical school from 500 to 700 without increasing the number of professors (...) what can you expect from those kids? (CVS1, 46, male, public)

> What is currently on the agenda is going on since 2000s. Learning from the master, but there is no such one-on-one education anymore. One learns from the one that is one degree ahead. Whatever he knows, the other knows some of it. Going down like that the quality of the work decreases. Then knowing what is going on abroad, we still see stupid things, types of treatment, even plaster casts. In the end, living abroad adds something to the person. (ORT4, 45, male, private)

> [When working at a public hospital] we had 12 professors, and 160 operations were performed monthly. Now it fell down to 40 operations, they are doing 40 in a month. And of those 160 operations, 100 were serious cases, big operations. Now of the 40 operation performed 10 of them are serious, and God knows how they are being made. (ORT2, 65, male, private)

Medical technology constitutes a significant pillar of the transformation in health. While investment in technology is observed in greater amounts in the private sector, some technological initiatives were also made in public hospitals. In the following excerpt, a neurosurgeon describes the oblique and tedious routes they had to cover in order to reach new technology when working in a public hospital:

> I started working at a public hospital in the most depressing conditions, with only a knife and bipolar in our hands. You have to push the conditions yourself. No one brings them to your knees. This struggle will always exist. It is never easy. For instance, you ask how many operations I make in a day. As I will earn money, wish he makes 5 operations and asks for no devices. That is what everyone wishes. No expenses but 5 operations. It doesn't work that way. With struggle, spending maximum effort, you can get the maximum support. Operation does not end in the operating room; you should continue doing operation in terms of social relations. (...) You have to make use of your connections, spend effort, prove… For instance, there is a boss here, I have to explain to him, "look, this device works this way, it is good for this and so on". These all need explaining. It is not enough to say this should be bought. There are manners, lots of factors, I mean. (NS1, 50, male, private)

A significant case of ambitious technology investment on part of the public hospitals was the purchase of robotic surgery devices. A surgeon working in a public hospital, succeeded in persuading authorities for investment in robotic surgery:

> We are the first to do it in a public hospital. I am the first to do it in the state [sector]. (...) Following us, robotic surgery exploded in Turkey. In our wake I guess other hospitals, state hospitals and private hospitals also purchased it. (...) Bringing the robot here, [we also thought] as a PR, as marketing, both bringing something new and the name of the hospital to become known. So we started that way. I brought the doctors over there; from the clinic in Cleveland. We performed operations here together, our first operations. So we reached a point. This is the center going with the highest volume. (URO1, 47, male, public)

7.2 Marketization and Surgical Craft: Surgeons in Private Hospitals

The application of market-oriented policies resulted in the proliferation of private hospitals and the emergence of a profitable healthcare sector. With the benefits private organizations offered to senior surgeons working in public hospitals or university hospitals, in turn, there has been a flux of surgeons from public to private. The regulations mandating full-time work and the closing of private offices for those working in the public, and the imposition of the performance-based wage system also provided a basis for this flux.

In addition to this flux, the increasing rate of turnover in the private sector created greater organizational mobility for surgeons. It is common for patients to go back to a hospital six months later and see that their doctors have gone to another hospital. This mobility was a radical change, particularly for the older generation who were used to work in the same institution for long years, even several decades. In addition, the increasing use of advertisements and other marketing techniques by private hospitals, and the increasing competition among surgeons created a new environment in which surgical craft would be conducted. These started to have impact on the character and attitudes, a defining element of the craft.

For many surgeons, this was a new atmosphere that they were not familiar with; and the ways and success of adaptation varied among them. Especially those who left teaching posts in universities where they worked for long years explain their decision as a result of *necessity* while they also express a feeling of *loss*. As also complained about by students, with their leave university hospitals were deprived of professors to teach the tacit skills of the craft. The disruption of the master-apprentice relationship experienced in such institutions meant the erosion of the craft characteristic of the occupation. So it was also a loss for the masters:

> I had to leave the university. Assistants, education ... I used to earn money in my private office, while both teaching assistants outside and doing operations, and raise assistants. If there are people who misuse, then you eliminate these, but this was not the objective. The objective was to transfer the knowledge, the know-how to the private sector, the capitalists and earn money. If I were at the university, this place would not be earning this money. My university would earn it. The patient from America would not come here, but to the university. If I promoted, and I would. I would not want to leave my academic position. The university has a different aura. You develop yourself better. I would not want to leave the public. (URO4, 47, male, private)

As mentioned above, the training of a surgeon to the level of mastership, so that she can transfer her accumulated knowledge and skills to next generations, require long years. In the following excerpt, another surgeon expresses his thought on this experience of unwanted mobility:

> I entered the university in 1979. I worked there for 31 years. I left at a relatively young age. Why did I leave? There were a lot I could give there. Don't take me wrong, but it is not easy for a person like to me develop. We gave our labor to this work, and the state spent money on us. But we also spent more than what the state spent. Twice I sold my car in order to go abroad. It was not easy to buy them back later. There was a return to

> the public in all these ... I don't attribute it to a single body. This is something brought by the global capital. It is very wrong. There are similar applications in the world. Health has been commercialized. That's very wrong. As a result we left. (NS3, 52, male, private)

Although most take a critical view and express they were negatively affected, others think that it is more advantageous to work in the private sector, for it offers wider opportunities.

> For now, I chose this way because of necessity, I am working more comfortably here. I have equipment, I earn money, I have greater freedom. Then the universal structure is in my mind. I am doing it, I mean. You will develop such a surgical technique in a private hospital, publish and foreign patients start coming. This is no easy task. (URO4, 47, male, private)

A significant consequence of the flux of the surgeons to the private sector, to emphasize once more, is that assistant training will no longer be as it was. This is a profound change for the occupation. As mentioned before, many surgeons lamented for the fact that they will no longer train "apprentices", expressing nostalgia for this:

> I have some dissatisfaction. I am sad. Because I have an academic dimension. Here [in the private] it becomes weaker. Naturally, this is not an academic institution. Thus I feel its loss. We are trying to compensate for it with other things. That is with personal development, hobbies. In that aspect, it is lacking, assistants and so on, that dynamism does not exist unfortunately. (NS4, 55, female, private)

The regulation mandating full-time employment for surgeons (*tam gün yasası*, as it is publicly known) drove many surgeons from public to private sector, but also inhibited the surgeons working in private from transmitting their knowledge to students at medical schools even if they wished to.

> There is no one to train the intern. They drove away all the professors, and pacified those that did not. Can you imagine, telling me "you will work from 8 to 17 at the hospital, and only lecture the students". Which student? Medical student. Which course? Orthopedics. How will I give this course? Orally. I will go and just speak there. What will I give to the interns? I should be making the intern operate. This is also training. No, you cannot operate. I will examine patients, admit patients to the hospital. I will continue teaching. No, you cannot accept patient. Please, I wish the minister of health come and explain the logic in this to me. (ORT2, 65, male, private)

Another aspect of this issue of mobility is that, private hospitals do not want to spare time for professors to train assistants as in the past. The logic of market competition does not leave much space for it. Long-term effects of such tendencies may be a weakening of occupational practices, eventually reflected in the quality of treatment:

> The professor does not want to train assistants [in the private sector]. Assistantship used to be something different. When the professor came, the assistant would learn something. Now things are different, assistants do not have respect. Things have moved badly. My only trouble is, if something happens to me in the future, how are these kids going to treat me? (URO4, 47, male, private)

7.3 Patients and Surgeons: Changing Attitudes and Expectations

This section deals with the changes in the relationship of patients with surgical technology. This relationship is, however, analyzed as it is experienced by the surgeons, since patients have not been included as informants in this study. Indeed, the surgeons have conveyed numerous experiences regarding the patient-technology relationship. There is also a substantive literature on the patient, as previously discussed in section 3.2. Within this literature a shift is observed from a focus on the power relationship between the physician and the patient, to the increasing knowledge and power of the patient, partly as a result of new information technologies, and also associated with the commodification of health. As a result, the patient acquires a new characteristic as the *consumer patient*.

According to surgeons, patients are closely following innovations in medicine, particularly through the media, and demand new technologies, devices and prostheses in their treatments. The information they acquire from the internet or from other people influence their demand for technology. It is common among the patients to conceive operations conducted with higher technology as “better treatment”. One of the factors fueling this conception has been the increasing publicity and advertising transmitted by private healthcare organizations through their websites, as well as the media. The increasing privatization in recent decades, and the competition that this created has been the factor behind this.

In this new era, the strategies employed by surgeons to build reputation have also changed. Surgeons individually are also relying more on various media, and especially the internet and television for promoting themselves. This is particularly

the case for surgeons that perform "solo-practice", without being associated with any healthcare organization.

It is natural that for-profit healthcare organizations consider their patients as consumers, and the reforms in public administration aim to establish the same view in public hospitals. Positive attitudes toward surgical technology on behalf of the patients, their growing trust in diagnostic techniques and in treatments based on them are significant for the health sector, as they increase the demand for both services, and for advanced technology. On this basis, health becomes a consumption item for patients, advances or new technologies are turning into "fashion trends" driving consumer demand. The conception of treatment gains an aesthetic dimension, particularly in the form of demand for fewer scars on the body. According to surgeons, such technologies are not always meaningful in a medical sense, but the patients demand them. The following anecdote narrated by a surgeon provides a good example for this:

> Women in Far East are very sensitive about the incision scars. It should be explained with their culture, but that's how it is. In Korea and Japan, a scar during a thyroid operation, they enter through the armpit laparoscopically... Hey, this thyroid is just under the skin! Can you imagine? For a young woman, it is not enough that it is laparoscopical or robotic. Because she says she does not want the scars of those holes, then using the navel as the only hole and thus we call it "single port surgery". People are not interested in laparoscopical removal of gall bladder anymore. They are interested in "single port surgery". And if there is a piercing or some special tattoo there, it will not be deformed either. Can you see how demanding they are? (URO3, 53, male, private)

A similar point can be made for robotic surgery:

> A great majority of our patient are very interested in our use of technology. (...) Nowadays robots are in fashion. People follow new technologies and come and say there is this. Even for technologies not yet in use, they ask if it is available. For instance, there is a news in *Guardian* or some other place, like "whatever is now history; child from stem cell, cure for infertility". The next day patient comes with the clipping, asks "doctor, is this being done". (URO2, 51, male, public)

The patients' interest in technology, on the other hand, does not significantly differ among different strata:

> These demands come from all socio-cultural groups. A patient from Şırnak, Mardin or a scholar, a professor in a different discipline at the university, for instance, they both ask: "What kind of an operation will you do? Which technologies will you use? Which

> devices will you use?" Such questions come from all sections. (CVS4, 40, male, private)
>
> They know all of them. They read, see. They know the hospital in America, too, they come. I am giving rough knowledge. But they know most of it. (ORT1, 48, male, private)

There may also be common misunderstandings among the people, as in the case of "laser surgery". Surgeons from various branches repeatedly mentioned this widespread demand for laser. Considered as an advanced technology, many patients believe that an operation with laser would be advanced technology and that it would be better for them.

> It is popular to call laser even things that are not laser. In circumcision we use something like a soldering iron, or cautery, nothing to do with laser. All people think it is with laser, just misnaming. There is real laser, the green light. They also have a high regard for it, saying I want to be operated with green light ... (URO2, 51, male, public)
>
> "Professor, are you doing with laser?" I love this question! Laser of course entered our minds, we were kids, there was Star Trek. The laser would open with a Bizzt sound. The word of laser is everywhere. Laser fixes everything. He ponders, "will you remove it with laser?", as there could be nothing superior. They ask it all the time. And there is the space knife, space scalpel tale. Media does it too, of course. People wonder. When I say I won't do it with laser, they are slightly hurt, feel sad. They think that this guy does not have a laser, that's why he does not use it. Patients definitely want the highest technology. Especially patients coming to me want me to do with whatever there is in space. There is a very high demand. (NS1, 50, male, private)
>
> This way, they sometimes hear, and ask "do you do this with laser?" And I do none of them with laser. I say "lasers are only in laser swords". Laser only cuts, it has heat, I say. Laser does not do anything, but of course in this market ... I say laser is light sword. "Do you watch Star Wars? There it is", I say. (ORT4, 45, male, private)

Turkish patients are especially considered as technology-loving:

> Turkish patient is very keen on technology. They love innovation, very interesting. For instance, maybe they see it in the advertorials, and so on. For instance, one comes out and say something platinum is good, then all the patients ask for than platinum thing. I mean, they do not ask if it is good or bad, whether I have experience about it. Turkish patients love it, therefore. Our people loves this thing, they are open to innovation. (NS4, 55, female, private)

There are also exceptions to this technology-loving attitude:

> Some patients interestingly come as opponent, some say "open it and see", with a more traditional point of view ... thinking it would be safe. "Hold it with your hand, see with your eyes". ... Majority demand technology intensive operations, thinking it will be easier and lighter. (URO2, 51, male, public)

The consumerist attitude on the part of the patient may create a leveling effect in the doctor-patient relationship, something different than the past when patient was mostly regarded as subordinate. For some surgeons, this should be considered as a positive development:

> Previously they used to say "doctor, first God and then you", and this still continues among Turkish patients. But it has become so rare. I think it should be so. This means that the patient has become conscious and demanding. That demanding attitude is in fact bringing technology along sometime, but is it for the right reason or so that the piercing is not harmed? Medicine is currently debating this. (URO3, 53, male, private)

In the context of privatization, and patients with higher levels of income, this leveling effect may have adverse results, as surgeons are used to being revered:

> In the end, as people have the power to buy everything, there may be disrespectful behavior. As the economic status increases, there are some who think they can buy the doctor. (URO1, 47, male, public)

> My job is *konsomasyon*! That is it. You have to please the patients. System goes towards that. (ORT4, 45, male, private)

The sections above analyzed the effects of social change on the surgical craft and particularly its interaction with technology. This included three dimensions: The transformation of healthcare system; privatization and organizational mobility; and the changing role and attitudes of the patient. These three topics could be collected under the categories of state, market and patient, thereby providing a summary description of the current social dynamics impacting upon both surgical work and surgical technology.

7.4 How Do Surgeons Adapt? A Typology of Surgeons

The recent decades have brought changes to surgery, in various aspects ranging from techniques and technologies, to skills required or the organizational environment. As a result, the possible career paths proliferated, and surgeons faced with the necessity of making new choices. In their interaction with new technologies, new organizational environment and changing patient attitudes, surgeons had to reposition themselves. The way various surgeons adapted to these changes have also

differed. One significant differentiation is the generational differences in adaptation to closed surgery, which was discussed in the previous chapter. This generational separation was primarily in response to the technical changes in surgery. The previous sections, on the other hand, analyzed the changes in the context in which surgical craft and surgical technology were embedded. Considered in this broader context, a more detailed differentiation of the typologies is required. In other words, the surgeons interviewed in the field study presented different types of response to all these changes. There are those who have proactively engaged in the transformation, while there are also those who resisted or failed to adapt.

On the basis of interviews and observations, and the analyses presented in previous sections, a six-fold typology of surgeons has been developed, as summarized in the table below. Before engaging in a detailed explanation of the typology summarized in the table, some important points should be noted beforehand. First of all, this typology does not automatically reflect the generational or public-private differentiations. In that sense, it is not limited to the responses toward either technological change or the reform program in isolation. The aim is to reflect a more complex context of interaction, which includes these as well as the conception of health (healing or mending) that directs the surgeon's practice, and the interaction of surgeons with the market. Secondly, the typology reflects the types of surgeons encountered in the field study, and is not exhaustive in that sense. A third point is that there also exists transitivity within these types, as some surgeons may present features that coincide with more than one category.

Table 20: A Typology of Surgeons

	Technology	Market	State (Healthcare Reform)	Patient
Proactive Surgeon	Lover	Cooperative Proactive	Positively affected Supportive	Mending
Boutique Surgeon	Lover	Imposing his own rules Independent	Positively affected	Mending
Academic Surgeon	Critical Adapted	Compelled to adapt	Critical but positively affected	Healing Altruistic
Innovator Surgeon	Lover	Proactive	Positively affected Neutral	Mending Healing
Nostalgic/Conservative Surgeon	Resistant	Resistant	Critical	Healing Altruistic
Loser Surgeon	Failed to adapt	Neutral	Indifferent	Indifferent

Source: Author

Proactive Surgeon: The defining feature of this category is that they have successfully adapted to both technological and organizational changes in surgery.[62] In the case of older surgeons, they managed to acquire the new skills required by new technologies, or transfer their skills into reputable positions. They are highly competitive and keen on following all medical innovations and adapting them into their work. The demand and pressure of the health industry as well as the patients for new technologies is a significant factor for driving them in this direction. In other words, they usually follow and try to anticipate the trends in order to cope with

[62] The term "proactive" is also used by Castellani and Wear (2000), in a slightly different way, where they use it to describe "a group of physicians", who were able to meet "the professional demands of corporate health care" in the US context.

market pressures. In that context, a reciprocal relationship is formed among them and the market: By following the scientific and technological trends closely, they are able to find positions in corporations that invest heavily in new technologies; in this way they maintain greater access to those expensive technologies. Such a relationship with corporations, on the other hand, requires the surgeons to possess other skills which are not a traditional part of surgical craft. First of all, they need to persuade the administrators and the owners of private hospitals to invest in such technologies. The surgeons in this group, in short, are inclined to work along the new dynamics of health market. Even those working in public hospitals may manifest proactive attitudes, as they integrate business-oriented skills in their work, in line with the general trends in public administration. With regard to the topic of the transformation of the health care system, they have usually benefited from it, and are supportive of it. This is partly because the transformation program enhanced the private sector in health, creating greater patient volume and more investment in technology. Their approach to treatment is more in the form of mending, rather than healing, and they accept their patients as customers. Surgeons from both traditional and transitional generations can be found within this category. They are masters of both open and closed surgical techniques. With regard to public-private distinction, it is also possible for surgeons in public hospitals to take a proactive position. The diffusion of business-like administrative principles in the public health sector created a basis for such surgeons to become leading figures. Such figures have been able to purchase expensive new technologies to their hospitals, or have taken administrative positions.

Boutique Surgeon: They are also in close relationship with technology. The reason this category is defined as boutique is that they are not employed by any hospital, and work independently in their own offices. They are associated with one or more hospitals where they conduct their operations on the basis of contracts, otherwise they are independent. This type of solo practice is not new to the medical profession, as it has been almost the norm in the US, for instance, prior to the corporatization of health care. In Turkey, however, it is quite rare among surgeons, since it is difficult for a surgeon to have such independence. Reputation is essential for the surgeons in this category; but they rely on their own means for public relations or promotion. The

new internet-based technologies, however, provide them with greater means to present themselves as *brands*. It is also common for them to have held academic positions for long years, since the building of a strong reputation is more possible for such surgeons. As they have their own work, which they regard as business, they also have entrepreneurial skills. Treatments they provide, in turn, become also business transactions. Majority of their patients have extensive private health insurance policies or they cover the costs themselves. The volume of operations they perform is generally small compared to those working at hospitals. By providing high-quality services in small amounts, and mostly for a limited, elite group of customers, they may be regarded as craftspersons in the full sense of the term. They employ secretarial and assisting staff, and they usually invest in certain technological equipment for diagnostics and treatment that can be used outside the hospital setting. In this sense, their office is more like an enterprise. As an enterprise, therefore, they are facing risks, and the guarantee they have against such risks is basically the reputation they have built upon mastery in their craft. They should be considered among the beneficiaries of the recent transformation and privatization of healthcare in Turkey.

Academic Surgeon: As the title implies, the surgeons in this category have, or used to have, academic positions and titles. Most of them have worked in public university hospitals until recently; majority of them are now working at private hospitals, while some are also associated with medical schools in private universities. What is common to this group is, therefore, primarily that they all had academic careers. Besides, they also present similarities in their relation with technology and their approach to patients and the treatment process. The topic of the transformation of healthcare arose most frequently with members of this group, which was the main reason for many of them to leave university hospitals after many years. Therefore, they feel resentment toward the transformation policy, and they continue to be concerned about the current situation of university hospitals and the future of medical education. The master-apprentice experience is particularly significant for them, and they express sorrow for not training assistant surgeons anymore. They remember their time in university as a period when they fully performed their craft:

Operating, training assistant surgeons, researching and lecturing. In other aspects, however, they are among the beneficiaries of the transformation, as they could find good positions in prestigious private hospitals. With this change, the general profile of their patients has also changed, yet they do not reflect businessman-like attitudes as much as the previous two groups. They are up-to-date in surgical technology, and are skilled in both open and closed surgery. In their approach to patients, they are more altruistic, and their understanding of treatment is based on healing.

Innovator Surgeon: These surgeons definitely love technology. They have succeeded in developing a new device, a new surgical procedure for a disease or a treatment for a previously untreatable disease. As they demand greater access to new surgical technologies, they also take a proactive position in their relations with the market actors. They have positions in private health organizations which invest heavily in medical technologies. With regard to the transformation of healthcare, they have either been not affected by it, or took advantage of it by shifting to private institutions. Members of this category may also be seen in the categories of academic and proactive surgeons. In terms of age, they are almost exclusively within the transitional generation. Thus they are skilled in both open and closed surgery, as they have learned the open techniques from their masters, and they are particularly good in laparoscopic and robotic surgery. Their approach to treatment oscillates between mending and healing. Their primary motivation for working in private is their demand for research and development facilities rather than increasing their income.

Nostalgic/Conservative Surgeon: All of the surgeons in this category belong to the traditional generation. They insist on giving primacy to open surgery, and are more distanced to closed surgical techniques. They are more selective in their assessment of technology, and they do not take as granted that every innovation in medical technology necessarily brings improvement in health. They are the heroes of open surgery, they are master surgeons with extensive experience. They feel nostalgia for the old ways of surgical craft. They are definitely critical toward the recent transformation of healthcare. They continue to work at public or university hospitals, and closed their private offices. They reject working in private hospitals as a matter

of principle; yet, they usually lack the extra-surgical skills for developing such a career. They are surgeons with higher level of altruism, and their approach to treatment is definitely based on healing.

Loser Surgeon: This category includes those surgeons from the traditional and transitional generations that failed to adapt to new technologies. Two sub-groups can be defined within this category:

- Those surgeons that belong to both the losers group and the traditional generation are quite competent in open surgery, but they failed to adapt to new technologies and closed surgical techniques partly as a result of their resistance and partly because of the age disadvantage.

- For those that belong to the transitional generation, on the other hand, one of the reasons of failure in adaptation is that they may have built their early career in small provincial cities. As they had less opportunity and motivation to update their skills, coming to a city like Istanbul, they could not catch up with the newest techniques. While their generation increasingly became masterful in closed surgery, they fell behind. Weakness in language skills was a further disabling factor for this group. Following the developments in surgical techniques and technologies require intense participation in international congresses, observing operations abroad or following the increasingly accessible visual material through the internet and other media, and the grasp of one or more Western languages is a significant requirement in this respect. As a result, most of these surgeons are able to find positions in relatively moderate private hospitals or public hospitals, and mostly perform conventional open surgeries. They usually do not express definite views regarding commodification of health, and are indifferent to the transformation program as well as to the distinction between mending and healing.

One of the general points that can be made about loser surgeons is that they manifest signs of reduction in their motivation toward the surgical craft. In contrast to all other categories, they regard surgery mostly as a job, and combined with their incompatibility with new technologies, this turned them into disgruntled surgeons.

The typology of surgeons on the basis of how they interact with transformations on various aspects, in conclusion, indicates a complex web of interactions that the surgeons find themselves in. They are supposed to cope with technological change through skill acquisition, while also dealing with the changing composition of public and private actors in the healthcare sector and the changing attitudes and expectations of patients. How they respond, in turn, determines the organizational context they work in, their income or their daily work load and routine.

A series of technological developments reformulated the way surgery is performed on several dimensions: in diagnostics, technological devices increasingly replaced the surgeon's manual skills, making them more dependent on other specialists such as radiologists, but also compelled them to acquire new skills in order to interpret the images produced by new diagnostic devices –implying both de-skilling and re-skilling. This also had impact on their relationship with the patients and threatened to weaken the physical and emotional contact with them.

At a more fundamental level, moreover, significant changes occur in the basic tenets of surgical craft: The level of autonomy surgical craft enjoys with regard to state, market and patients oscillate; master-apprentice relationship is weakened in response to both technological and organizational changes with simulation courses based on digital technologies replacing the conventional apprenticeship in certain branches; and finally, the character and attitudes associated with the craft –the surgical ethos or personality- is undergoing a transformation in response to the marketization of health, the rise of consumerism and the weakening of public-oriented conception of surgical profession. This final point is reflected in how they define treatment – whether as a holistic process of healing or in a more specialized and reduced view as a process of mending some broken parts. A view of treatment as mending, in turn, leads to a hollowing of the emotional contact with the patient, greater dependence on

technology for diagnosis and a tendency for over-specialization. To the extent these coincide with the changing attitudes of patients, such as greater demand for technology and specialized surgeons- and with the demands of the marketized healthcare, this tendency is further strengthened as it offers material benefits and occupational success to the surgeon.

It is on these grounds that surgeons follow different paths based on both their level of skills and their adherence to conventional values associated with the craft. Those who have a competitive advantage on the basis of their both surgical and non-surgical skills may negotiate for more advantageous positions in terms of income, prestige and access to technology. In the context of contemporary Turkey, surgeons in this group generally had acquired their training and early experiences in public or university hospitals, completed their apprenticeships beside masters of older generations, meaning they were socialized in a more conventional professional ethos that was not completely in accord with the later trends of marketization, privatization and commodification. So, while belonging to the transitional generation in terms of their relationship with technology, they were also most directly involved in the transformation of healthcare towards a more market-oriented structure. Their skills were also profitable in this new environment, especially when accompanied with other skills that are not part of the surgical training but gained significance. Skills related to marketing, social media, entrepreneurialism, competition or managerialism were among those skills that would provide them further advantage in this environment.

Considered in the light of studies on other categories of medical professions, surgeons appear to differ in the way they are affected by the trends of marketization or post-Fordism in healthcare sector. Both the craft character and the technology-intensive nature of their work provide them with a ground to negotiate and bargain their position with both state and the market. These two characteristics of surgical craft, therefore, led to a greater differentiation both among surgeons as well as between surgeons and other medical doctors.

This differentiation among the medical professions in Turkish healthcare sector, on the other hand, led to differences in the attitudes towards the transformation of healthcare policy of the government, and the marketization of health in general. Internal divisions within the medical profession as a whole functioned as a strategic advantage for the state and market forces in carrying out the transformation policy with relatively less opposition. The surgeons who were opponents of the policy, particularly its component bringing full-time work requirement at public hospitals, were at the same time beneficiaries of the policy in general, as the demand for surgeons in the private sector increased and surgical operations promised a profitable part of marketized health services attracting increasing investment in surgical technologies and services. This point is reflected in the field study, as surgeons working in private hospitals generally expressed their satisfaction or content on the dimensions of both autonomy and access to technology, arguing that these enable them to better perform their craft. This is the case even when they also express a feeling of loss and nostalgia for having left the public sector or university hospitals. This situation of being in-between, of both benefiting individually from the transformation while feeling discontent on the basis of values, coincides in most cases with their belonging in the transitional generation of surgeons as defined in Chapter 6.

The performance-based payment regime in public hospitals, while bringing greater administrative control over how the surgeons –together with other medical staff- worked, also created incentive for greater use of technology in their attempt to earn performance points in order to increase their income. Paradoxically, while trying to discipline surgeons and increase efficiency in their work through an award or punishment mechanism, this regime also led to a greater number of diagnostic and operative procedures requested and performed by the surgeons, which in turn led to an increase in overall health spending. Another impact was the selective attitude toward treatments and patients, since performance-based payment system caused an inclination among surgeons for those procedures that provided easier and more performance points while trying to avoid cumbersome and risky operations that

gained relatively less points. The intense use of technology in surgery provided many opportunities that could be manipulated for such aims.

With regard to the merits of the conceptual framework proposed and applied in the study, it can be concluded that the framework proved to be a sufficiently convenient analytical tool in enabling a comprehensive analysis of the status of surgical craft in its current circumstances in Turkey. The observations relayed in this and the two preceding chapters provide sufficient ground to argue that surgery maintains its craft character in the face of wide-ranging changes it encounters and that it resists the deskilling effects of technological and managerial changes.

CHAPTER 8

CONCLUSION

This study set out to study surgical work by investigating how the craft character of surgical work interacted with technological change, transformation of healthcare and marketization of health. What provoked such an investigation was a puzzle presented by surgery's relationship with technology: Throughout the 20th century, surgery gained immense effectiveness through technological developments and has become a high-technology field, while also becoming corporatized inside hospitals, which themselves became characterized by increasingly complex division of labor and bureaucratic administration. Despite all these, however, it maintained its craft character. Even today when robots are being employed in the OT, surgery continues to remain as a craft. This seems to go against the expectations of sociology regarding the dissolution of craftwork when encountered with technology, division of labor and specialization.

In order to produce an explanation to this puzzle, this study has engaged in a detailed conceptual analysis. At the first step surgical craft was defined on the basis of a conception of craft composed of six components. Secondly, this conception was further elaborated, as a result of which surgical craft was defined as a "technology-driven craft". This was the peculiar character of surgery as a craft, due to which technological advances strengthened its craft character, giving its practitioners exceptional status in comparison to many other occupations. In a time when medical profession established a position of dominance or powerful autonomy in its relations with the state, market and patient, surgery established a superior position within the

medical division of labor. As a result, it is the claim of this study that it was the craft character of its work that provided surgery as a profession such a powerful position.

The first step in the study was to define surgical work as *surgical craft.* This conception based on six components ensured that all aspects of surgery –as a profession, as a scientific field, and as a work performed with hands- could be captured.

The second conceptual move was to emphasize the *technology-driven character* of surgical craft. Surgery obtained its prestige only through technological innovations that finally made it effective in saving lives. The current intensity of technology usage in surgery is a result of its close interaction with technology. Besides, the technological developments starting in the second half of twentieth century transformed medicine into a giant health industry. The seemingly paradoxical point is that the intensification of technology did not decrease the role of the surgeons in surgery. The history of work is rich in examples in which intensification of technology in an area of production resulted in the workers' loss of control over the labor process. As a result they become alienated, lose autonomy and become deskilled. However, this is not the case in surgery. Surgery continues to be defined as a craft, demonstrating that surgical craft is not necessarily in contradiction with technology. On the contrary, it benefited from technology, leading to a happy marriage between the two. The main reason for this is that new technologies do not necessarily deskill the surgeon, because each new technology transforms into a tool to be manipulated by the surgeon, rather than a machine replacing their skills. New technologies require, moreover, new skills to be acquired by the surgeons. This has been continuously confirmed by the surgeons interviewed, who believe that technology makes them better surgeons. This leads to the conclusion that this paradoxical nature of surgery's relation with technology can best be analyzed by employing the concept of craft.

With this conceptual solution to the puzzle presented by the surgery-technology interaction, a field study of surgeons was designed. The aim was to benefit from the insights that a craft framework provides in analyzing the effects of technology on a

professional work. On this basis, the study set out to produce an original contribution to the sociological study of surgical work, which hitherto has been mostly studied as part of the general category of medical work or with a focus on the medical anthropology of surgery.

Equipped with these conceptual tools –*surgical craft* and *technology-driven craft*- the study's main focus was to observe the craft characteristic of surgical work as it is practiced by surgeons in Turkey. The Turkish context provided a convenient and interesting field for studying surgical craft, since comprehensive transformation on two levels could be observed in the practice of surgery in Turkey. The technological changes introduced by new imaging and diagnostic technologies as well as the laparoscopic and robotic surgical procedures are fully established in Turkey, being applied extensively. Turkey also presented a valuable case for observing a profound transformation in all dimensions of the social context of surgery, as the agenda of healthcare sector in Turkey is characterized by the processes of healthcare reform, privatization and commodification.

The first part in analyzing the findings of the research was concerned with how each component of surgical craft was observed in the contemporary practice of surgeons in Turkey. As represented in Chapter 5, this part combined the direct observations in the hospitals and operating rooms with findings from in-depth interviews with surgeons. The observations in the operating room provided the opportunity to observe surgeons as they work in their working environment. A close inspection of each component demonstrated the functionality of the craft framework in observing and analyzing surgical work, thereby justifying the definition of surgery as a craft. Moreover, the trends of change caused by introduction of new technologies could be easily detected within each component. Analysis of the skills dimension, first of all, demonstrated how technology provided the impetus for surgeons to continuously engage in skill acquisition. This necessity also had implications for surgical training, which could be analyzed under the component of master-apprentice relationship. In the context of output, furthermore, a differentiation in the conception of treatment was observed, as a narrower conception of treatment as mending developed beside

the more conventional and broader conception based on healing. To summarize, trends of change were detected in almost all components of the craft, upon which the impact of new technologies was considerable. Overall, however, these changes do not invalidate the craft framework. Surgery continues to be practiced as a craft, while serious modifications are observed in all its components in response to technological and social change.

The second part of the analysis focused on surgery's interaction with technology in more detail, and this analysis was presented in Chapter 6. The technologies that profoundly altered the way surgery is conducted have been summarized in two sections: Imaging technologies, and the development of closed surgical techniques, that is laparoscopic and robotic surgery. Digitalization of imaging technologies radically changed the diagnosis stage, modifying the role of hands in examination. A further development that was caused by the intensifying technology is the spread of sub-specializations in surgery. The major surgical specialties have been divided into narrower sub-specialties, focusing on specific organs, parts or diseases of the body. This was a source of concern for surgeons losing a holistic view of the human body, and causing a shift from mending to healing in the conception of treatment. This sub-specialization trend was a result of necessity according to the surgeons: The growing body of knowledge makes it impossible for an individual surgeon to cover a complete specialty. However, it has also been observed that surgeons decided on which sub-specialties to focus by considering other factors. The market value of a specialization –the prospective income and volume it promises- and the risks or hardships a sub-specialty includes –the risk of being sued for malpractice or long working hours- are important factors for assistant surgeons to decide on a sub-specialty.

The main turning point in the recent transformation of surgical technology has been the invention of laparoscopy which enabled the development of a whole new way of performing surgical interventions with minimally invasive techniques. The findings related to this development can be summarized under the following points:

i) *New surgical skills*: With the shift from open to close techniques, a radical change, or disruption, in skill has occurred. The surgeons have to work with two-dimensional vision in closed surgery, while there is three dimensional vision in open surgery. This shift to two-dimensional view reflected on a screen apart from the patient's body required the surgeons to change the way they coordinated their hands and eyes.

ii) *Master-apprentice relationship:* The conventional techniques of open surgery required long training periods. In this training period, assistant surgeons were required to watch the hands of master surgeons. In closed surgery, however, manipulation by hand is limited, and the procedures are more standardized. Therefore, there is not much for the apprentices to watch. Instead they watch the operation on a screen, and with current video technologies and the internet, this need not be done in the operating room.

iii) Most importantly, the skill disruption caused by the introduction of closed surgery led to a peculiar differentiation of surgeons in Turkey. The findings of the study indicate the existence of three separate generations or age groups, differing in their relationship with technology. These generations have been designated as *traditional*, *transitional* and *newcomers*, in descending order of age.

- *Traditional* surgeons (>55 age range) are the most disadvantageous in closed surgery, because since they had built their whole careers and mastership on the traditional techniques, or open surgery. At this stage and age, it is difficult for them to adapt to new technologies. Therefore only a small portion of them managed this.

- The *transitional surgeons* (35-55 age range) emerge as the most advantageous group, because they are more skilled in comparison to the other two generations. They have acquired the dexterity of hand under the supervision of their masters, and they also succeeded in adapting to the closed techniques.

- *Newcomers* (<35 age range) are the youngest generation of surgeons, those who are currently in the phase of apprenticeship. They have less opportunity

and motivation for learning open surgery, but their familiarity with digital technologies and video games facilitates their adaptation to closed surgery. Open techniques, however, continue to form the essence of surgical craft, and complications in closed surgeries will always require open procedure. A possible weakening in the teaching of open techniques in the future, therefore, creates a risk of decrease in future surgical operations.

iv) *The classical hierarchy within surgery is undergoing a transformation*. As the younger generations can adapt to new technologies faster than their masters, the conventional hierarchy based on levels of seniority weakens.

v) *Medical education is being transformed*. The changes in information and communication technologies provide new venues for surgical training. Besides, the increasing significance of patient rights and the regulations on malpractice limit the assistant surgeon's direct intervention on the patient's body. Video technologies and simulation courses offer a compensation for this.

Overall, the increasing intensity of technology does not eradicate the craft aspect of surgery, although it transforms, and sometimes weakens, some of its components. As a craft, therefore, mental-manual unity continues in surgical craft. Even the introduction of robots does not weaken the surgeon's role, as the surgeon's hands continue to dominate. In other words, surgical technologies function as tools assisting the surgeon; they do not replace surgeon's skills, like the machines did in other sectors of industrial production.

The third part of the analysis, presented in Chapter 7, was concerned with the social context that shaped, and was shaped by, the interaction between technology and surgical craft. In this part, three topics emerged. The first significant process that impacts on surgery is the current transformation of healthcare. In connection with this, the privatization and corporatization of hospitals change the organizational environment of the surgeons. Finally, the changes in the patient's role are significant. As a result of increasing access to health knowledge, patients are becoming informed patients, more demanding in their relation with the surgeon. As a result of the

commodification process, on the other hand, patients are increasingly regarded as consumers by the hospitals and surgeons. Overall, these three topics coincide with three-fold framework that was developed at the beginning of the study, comprising the categories of state, market and society.

One further contribution of this study is the development of a six-fold typology of surgeons in Turkey. The overall findings of the field study were combined in the typology of surgeons presented in the final section. This typology has been devised in order to summarize and classify the responses of surgeons to the changes in surgical craft, surgical technology, and the social processes impacting upon surgery's relation with technology. In that sense, this typology extends the generational classification developed previously. In each of the six components of the typology, the attitudes of surgeons toward the dimensions of technology, market, healthcare reform, and the conception of treatment (output) are summarized:

Proactive surgeons constitute the group that most actively engages with the changes in both surgical technology and the organizational environment. They are the beneficiaries of the privatization and commodification of health. They admire and closely follow technology, continuously updating themselves. The shift toward a conception of treatment as mending is most visible in the practice of this group.

Boutique surgeons constitute a peculiar group, as they managed to create the conditions of solo-practice, thereby gaining a more autonomous position within the health sector. They are positively affected from the healthcare reform, and tend toward mending in their approach to treatment. With regard to technology, they are similarly active in using the latest technologies. They offer high-quality service to limited number of patients. Since they work as private, with high fees, the profile of their patients is also mostly limited to higher-income groups.

Academic surgeons include surgeons with academic positions previously in public university hospitals who were compelled to move to the private health sector. They are highly skilled, and even the older ones are better adapted to technology. In financial and other aspects they benefited from the reform process, but they are

highly critical of the changes in health sector. Besides, they feel their craft to be weakened as they cannot train apprentice surgeons any more. In their approach to patients, they are highly altruistic and aim at healing.

Innovator surgeons are also aggressive in their use of medical technologies. They are distinguished as the developer of some innovation in their surgical specialties. They belong to the transitional generation and are skilled in both open and closed surgery. They prefer to work in private hospitals that invest heavily in technology and provide them with research facilities. Their approach to treatment oscillates between mending and healing.

Nostalgic/Conservative surgeons belong to the traditional generation. They are critical in their attitudes toward new technologies, privatization and healthcare reform. They do not leave the public health sector, and they are highly altruistic toward patients.

Loser surgeons are the ones, from both traditional and transitional generations, who failed to adapt to new technologies. This also limited their options in the health sector. They tend to be indifferent to both the healthcare reform and to patients.

As summarized above, the analysis progressed at three levels through chapter 5 to 7 and culminated in the typology of surgeons. This typology combines the findings of all stages of analysis, and provides the basis to assess the convenience of the conceptual framework developed earlier in the study. To recount these steps, the study first observed the variations in all components of the surgical craft in the practice of surgery in contemporary Turkey. Significant changes were observed in all the components, particularly in the *skill* composition of surgery, the *mastery-apprentice relationship*, and the *output* dimension. The immediate cause of these changes could be found in the technological changes recently introduced, which was analyzed in the second step. The introduction, in the third step of analysis, of the effects of the transformation of healthcare and marketization enabled a comprehensive explanation of these changes.

What was considered as a happy-marriage between the surgeon and technology could, in the light of this analysis, be considered as a triangular relationship of mutual benefit between surgeon, technology and the market. Far from eroding their craft, new technologies provide surgeons with more skills, which enable them to present their scarce and financially valuable expertise to the market. Given that the utilization of medical technologies function as a means of capital accumulation, as best exemplified in the explosion in the number of surgical operations in parallel to the marketization of health, this expertise is indeed valuable. It is not surprising, then, to observe surgeons involved in this relationship to be content about the level of autonomy they enjoy in the private sector with regard to their access to technology. This may not be the case for all surgeons, however, as surgeons may differ in their attitudes towards the commodification of health or in the level of skills they possess. These skills, moreover, are not confined to the surgical skills acquired in their surgical training, but also include other skills, related to marketing, entrepreneurialism, management or communication. Under these conditions, they may opt to resist marketization or engage with it to create more options for themselves. The variety of surgical practices and attitudes observed in this study demonstrate the availability of such options. This finding is also in parallel to other studies that observe re-stratification in medical profession in response to similar processes of change (Freidson, 1985; Waring & Bishop, 2013).

The underlying explanatory factor that explains the possibility of such a variation, in turn, is the craft character of surgery. For, this is the reason for surgeons to obtain such a valuable expertise in the first place, as this expertise cannot be transferred to machines or to the managerial control. This leads to the conclusion that the processes of de-skilling have not been effective in the case of surgeons, even if they could be valid for other categories of medical profession, such as nurses, radiologists, anesthetists or general practitioners.

The usefulness of employing the craft framework in analyzing the surgeon's relations with technology can also be expressed in another way. This relationship cannot be analyzed without taking into consideration the role of market, state and the patient. In

the absence of this context, the intensification of technology is associated with improvement in the performance of the surgeon. Thus, surgeons believe that technology makes them better surgeons. However, the inclusion of the social context demonstrates that there are factors driving the development of technology, such as profit or patient demand. When seen in this light, it is the surgeon that tries to comply with the demands of the health market. So, technological developments are not only related to the perfection of the surgeon's tools. But as long as they enhance surgeon's role in surgery, surgeons can benefit from the market pressure toward more technology.

Another remarkable conclusion of the study is related to the perspective of the lay person, the current and prospective patients. Up to this point, patient has been mentioned as active, demanding and knowledgeable. However, the ongoing changes also have consequences for what kind of operations and technologies patients will have access to. Even when technologies become available, moreover, the continuing significance of surgical craft means that the level of the surgeon's skills will continue to be important in the quality of operations. Currently, the trends in Turkey drive the most skilled surgeons of the transitional generation toward private institutions, limiting their availability to all sections of the society.

The changing technological configuration of technology also changes the requirements of surgical training. Prospective surgeons tend to have less opportunity in acquiring open surgical skills. The closed surgical skills, on the other hand, require new and complex training systems, such as simulation settings, which are also expensive. In some cases, assistant surgeons in university hospitals feel compelled to attend such trainings outside by paying from their own pockets. Such developments may create the risk of insufficient or imbalanced development of surgical skill in prospective surgeons. This, in turn, may lead to further inequality for the prospective patients in their access to best surgical treatment.

Going beyond the context of health, the study also demonstrated the utility of the concept of craft in analyzing work. A multi-dimensional conceptual framework based on the concept of craft proposed in this study can be utilized in different work

settings. Particularly compared with the concept of profession, which tends to focus predominantly on the dimensions of autonomy and organization, this framework allows a more refined analysis. Surgery presents a good example of a technology-intensive professional work, whereby the conceptual framework allowed us to focus on the technical aspects of the work performed, on the transmission of necessary skills through training based on apprenticeship as well as other dimensions of internal aesthetics or the particular character traits that the work attributes to the individuals, which are mostly ignored by other analytical frameworks. This study therefore implies that the application of the conceptual framework to different types of work could constitute a meaningful research agenda. The guiding idea would be to trace the characteristics of craftwork embodied in different occupations, particularly those engaged in intensive use of technology.

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APPENDICES

APPENDIX A: INTERVIEW FORM (IN TURKISH)

Görüşme No : .....
Tarih / Saat : .....
Görüşme Süresi: .....
Görüşme Yeri : .....
Görüşülen Kişi : .....
Cerrahi Dalı : .....

I. SOSYO-DEMOGRAFİK BİLGİLER

1. Cinsiyet : ( ) Kadın ( ) Erkek

2. Doğum yılı :

3. Doğum yeri : İl İlçe: Kasaba: Köy:

4. 15 yaşına kadar yaşadığı yer: İl İlçe: Kasaba: Köy:

5. Kardeş sayısı :

6. Medeni durum : ( ) Bekâr ( ) Evli ( ) Dul ( ) Boşanmış

7. Çocuk sayısı :

8. Eğitim

(a) Mezun olduğunuz lisenin adı ve türü?

01 ( ) Meslek Lisesi
02 ( ) Öğretmen Lisesi
03 ( ) Maarif Koleji/Anadolu L.
04 ( ) Fen Lisesi
05 ( ) Kolej
06 ( ) Devlet Lisesi
07 ( ) Askeri Lise
08 ( ) Yurtdışındaki bir lise mezunu
09 ( ) Diğer

(b) Tıp fakültesi:
Üniversite adı: .....
Mezuniyet yılı: .....

(c) Uzmanlığı aldığınız,
Okul-İhtisas/Üniversitesi-Hastanesi:.....
Uzmanlık Yılı: .....

9. Annenizin eğitimi ve mesleği:

10. Babanızın eğitimi ve mesleği:

II. İŞ VE İSTİHDAM

11. İşe başlama yılı: ……..… yılında hekim olarak ……..… yılında cerrah olarak

12. Daha önce görev yaptığınız sağlık kuruluşlarını ve yıllarını sayar mısınız?

13. Şu anda başka bir yerde çalışma durumunuz:

01 ( ) Muayenehane
02 ( ) Özel poliklinik
03 ( ) Özel hastane
04 ( ) Özel klinik
05 ( ) Üniversite
06 ( ) AR-GE Merkezi/Laboratuvarı/Kurumu/Enstitüsü
07 ( ) Eğitim/Uygulama Merkezi/Laboratuvarı/Kurumu/Enstitüsü
08 ( ) Diğer (Açıklayınız): .....
09 ( ) Yok

14. Haftada ortalama kaç saat çalışıyorsunuz?

15. Haftada ortalama kaç ameliyata giriyorsunuz?

16. Bir yılda ortalama kaç ameliyat yapıyorsunuz?

17. Bugüne kadar yaklaşık olarak kaç ameliyat gerçekleştirdiniz?

18. Günde kaç saat uyursunuz?

19. Son 24 saatte kaç tane kafeinli içecek (kahve, çay, enerji içeceği vb.) içtiniz?

20. Sıradan bir iş gününüzü nasıl geçirirsiniz?

21. Boş zamanınız olur mu? Evet ise, nasıl geçirirsiniz?

III. PROFESYONELLİK

22. Yaptığınız iş nedir, detaylıca tanımlar mısınız?

23. En çok hangi ameliyatları / tedavileri yapıyorsunuz?

24. Sizce cerrahlığın, diğer uzmanlık alanlarından ve mesleklerden başlıca ayrılan yönleri nelerdir?

25. Özerklik:

(a) Mesleğinizi yaparken kendinizi özerk hissediyor musunuz? İşinize çeşitli kanallardan müdahale edildiğini hissediyor musunuz? Ne şekilde?

(b) Günümüzde insanlar tıp konusunda çeşitli kaynaklardan gittikçe daha çok bilgileniyorlar. Böylesi bir değişim, mesleğinizi nasıl etkiliyor? Özerkliğinize etki ediyor mu?

26. İşbölümü & Hiyerarşi:

(a) Mesleğinizdeki işbölümü ve hiyerarşi nasıldır? Günden güne değişimler oluyor mu?

(b) Ameliyathanedeki işbölümünü ve hiyerarşiyi anlatır mısınız?

27. Son yıllarda işinizi yapma süreci, tekniği, biçimi değişti mi? Evet ise, buna neden olan en büyük etkenler nelerdir?

28. Alanınızda kendinizi geliştirme olanaklarınız var mı? Alanınızdaki gelişmeleri-yenilikleri-yeni operasyon tekniklerini ve teknolojilerini izl(eyebil)iyor musunuz? Nerelerden izliyorsunuz?

29. Yeni bir teknolojiyi öğrenmede veya yeni bir beceri edinmeniz konusunda kurumunuz tarafından destekleniyor musunuz? Yeni beceriler edinme yolunda kurumunuzdan baskıya maruz kalıyor musunuz?

30. Bugüne kadar uzmanlık alanınızda ne kadar sertifikanız var? Alanınızdaki konferanslara katılabiliyor musunuz? Yurtiçi/Yurtdışı? Yılda kaç tanesine katılabiliyorsunuz?

IV. ZANAAT/ZANAATKÂRLIK, CERRAHLIK VE TEKNOLOJİ

31. Sizce cerrahlıkta en önemli beceri, yetenek nedir? Yeni beceriler öğrenmede ne gibi gereksinim veya zorunluluklar ortaya çıkıyor?

32. Cerrahlık mesleğinde "yeni bir vasıf edinme" süreci nasıl işliyor?

33. Mesleğiniz için "elleriniz" ne anlam ifade ediyor? Sizce cerrahlıkta "İyi eller" süreci nasıl kuruluyor, gelişiyor? Doğuştan mı geliyor, öğreniliyor mu? İyi bir cerrahın özellikleri nelerdir?

34. Teşhis ve tedavi sürecinde, ne derece ellerinizi ve/veya teknolojiyi kullanıyorsunuz?

35. Teknolojinin operasyonlarınız ve işiniz için önemi nedir? Teknoloji ve cerrahlık ilişkisini nasıl tanımlarsınız? Teknoloji temelli/merkezli çalışmak tıp pratiğinizi değiştiriyor mu? Teknoloji cerrahlığınızı ve vasıflarınızı ne yönde etkiliyor?

36. Cerrahlık mesleğinizde örneğin tek bir alanda uzmanlaşmak mı, yoksa birden fazla alanda uzmanlaşmak mı istersiniz? Böylesi uzmanlaşmaların mesleğiniz üzerinde yarattığı etkiler ne olabilir? Detaylıca açıklar mısınız?

37. Yeni teknolojiler, özellikle Robotik Cerrahi (da Vinci) hakkında ne düşünüyorsunuz? Böylesi bir teknoloji sizin işinizi nasıl etkiliyor?

38. Hasta açısından düşündüğünüzde, hastalar teknolojiyi kullanmanızı bekliyorlar mı ya da tercih ediyorlar mı? Sizden ne derece teknolojiyi kullanmanızı bekliyor? Hastalar, ameliyatta ne gibi teknolojik cihazları kullanacağınızı sorarlar mı? Son gelişmelerden haberdarlar mı?

39. İhtisas eğitim süreçlerinde asistanlara teknoloji öğretiliyor mu? Bu süreç ne şekilde işliyor?

40. Tıpta 20-30 yıl öncesi ile bugününü, teknolojinin tıpta kullanılması, işbölümü, özerklik ve tıp mesleği açılarından karşılaştırabilir misiniz?

41. Teknoloji konusunda bu kadar detaylı konuştuktan sonra, uyguladığınız tedavide kullandığınız teknolojinin etkisini nasıl ölçtüğünüzü/değerlendirdiğinizi anlatabilir misiniz?

42. Bir meslek olarak cerrahlığı ve teknoloji ilişkisini konuştuk. Bu bağlamda, cerrahlık bazı yaklaşımlarda bir 'zanaat' olarak değerlendiriliyor. Siz böyle bir değerlendirmeyi nasıl buluyorsunuz? Sizce, cerrahlık-zanaatkârlık ilişkisi nasıl tanımlanır? Usta-çırak ilişkisi halen yaşanıyor mu?

43. Genel olarak Türkiye'de tıp mesleğinin işleyişi ve icrası hakkında ne düşünüyorsunuz?

V. TÜRKİYE'DE SAĞLIK SİSTEMİNDEKİ DEĞİŞİMLER

44. Türkiye'deki sağlık sistemindeki son değişiklikleri ve Sağlıkta Dönüşüm Programı'nı nasıl değerlendiriyorsunuz? Siz bu süreçten nasıl etkilenmektesiniz?

45. Sosyal Güvenlik reformu kapsamında yenilikler hakkındaki görüşlerinizi açıklar mısınız?

46. Sağlık sektöründe faaliyet yürüten herhangi bir şirket veya özel hastane ile ortaklık bağınız var mı?

47. Türkiye'de cerrahlık mesleğinin statüsü ve prestiji hakkında ne düşünüyorsunuz ve cerrahlık mesleğinin bulunduğu konumu nasıl değerlendirmektesiniz? Sizce bu mesleğin statüsünü ve prestijini ne belirliyor?

VI. DİĞER

48. Moral Değerler/Tıbbi Etik:

(a) Hekim olmanın iyi ve kötü yanları nelerdir? Mesleğiniz ne gibi risk faktörleri taşıyor?

(b) Sizce Hipokrat yemini ne anlam taşıyor?

(c) Sizce beyaz önlük ne anlam taşıyor?

(d) Tıp etiği bu meslekte neden bu kadar önemli? Size göre ne gibi durumlar tıp etiğini zedeliyor?

(e) Türkiye'de malpraktis davaları hakkında ne düşünüyorsunuz?

(f) Bugüne kadar ameliyatta hasta kaybettiyseniz eğer: Kendinizi sorumlu hissettiniz mi? Hasta yakınını siz mi bilgilendirdiniz?

49. Meslek Odaları/Üyelikler:

(a) Üye olduğunuz mesleki örgütler/odalar hangileridir?

(b) Neden üye oldunuz?

(c) Buralarda aktif görev aldınız mı?

(d) TTB gibi meslek odaları hakkındaki düşünceleriniz nelerdir?

50. İşiniz ile ilgili açıklamalarınızdan sonra, neden hekimliği ve bu branşı seçtiniz?

51. Cerrah olmaktan dolayı pişman olduğunuz oluyor mu?

52. İşinizi detaylı bir şekilde konuştuk. Sizce kazancınız yeterli mi? Bir ……..…… cerrahı olarak daha fazla kazanmanız gerektiğini düşünüyor muşunuz? Toplam gelirinizi nedir, söyleyebilir misiniz?

53. Bütün bunları düşündüğünüzde, kendi çocuklarınızın tıp eğitimi almasını ister misiniz?

Son olarak eklemek istediğiniz bir şey var mı?

Teşekkür ederim.

APPENDIX B: SOCIO-DEMOGRAPHIC PROFILES OF THE INFORMANTS

#	Informants	Sex	Birth of date	Birth of place	# of siblings	Marital status	# of child	High school	Medical School	Grad. Year	Surgical Speciality	Residency	Res. Year	Mother's occupation	Father's occupation
1	CVS2	F	1954	Aksaray	1	M	0	NA	İ.Ü.	1978	CVS	İ.Ü.	1984	Housewife	Agricultural Engineer
2	CVS1	M	1967	Kayseri	(-)	M	1	Galatasaray	Çapa	1992	CVS	Siyami Ersek EAH	1997	Teacher	Teacher
3	ORT1	M	1965	Muğla	2	M	2	Kuleli Askeri L.	Ege	1991	ORT	Gazi	1997	Farmer	Farmer
4	OBG1	M	1981	Ankara	1	S	0	İzmir-Anadolu L.	İTF	2005	OBG	İTF	2010	Housewife	NA
5	OBG2	M	1967	Malatya	5	M	1	İzmir-Public	Ege	1990	OBG	Ege Doğumevi	1996	Housewife	Illiterate
6	OBG3	M	1965	Malatya	5	M	2	Kabataş Erkek L.	Ege	1988	OBG	İnönü Ü.	1996	Housewife	Illiterate
7	GS1	M	1968	İstanbul	2	M	1	Şişli L.	Cerrahpaşa	1994	GS	İstanbul EAH	1999	Housewife	Civil Engineer
8	URO1	M	1966	Malatya	6	M	2	İstanbul İmam Hatip	Uludağ	1990	URO	Şişli Etfal EAH	1997	Housewife	Tradesman
9	URO2	M	1962	İstanbul	3	M	2	Kadıköy İmam Hatip	İTF	1986	URO	İTF	1991	Housewife	Prof., Theology
10	GS2	M	1969	Trabzon	(-)	M	3	Trabzon L.	KTÜ	1992	GS	İTF	1999	Housewife	NA
11	NS1	M	1963	Ordu	4	M	1	Bahçelievler L.	Hacettepe	1987	NS	Şişli Etfal EAH	1993	Housewife	Teacher
12	URO3	M	1960	Balıkesir	2	M	1	İstanbul Erkek L.	İTF	1984	URO	İTF	1990	Lawyer	Judge
13	CVS3	M	1952	Sarıkamış	4	M	2	Pendik L.	İTF	1976	CVS	İTF	1984	Housewife	Teacher
14	URO4	M	1966	İzmir	4	M	2	İzmir Ata Fen	İTF	1989	URO	İTF	1995	Housewife	NA
15	CVS4	M	1973	Yozgat	6	D	0	Ankara Atatürk A.L.	Hacettepe	1999	CVS	Siyami Ersek EAH	2005	Housewife	Teacher
16	GS3	M	1940	Ankara	(-)	M	2	Ankara Atatürk L.	Ankara TF	1963	GS	Hacettepe Pittsburgh	1967 1971	Housewife	Judge
17	ORT2	M	1948	İstanbul	2	M	2	Galatasaray	Çapa	1973	ORT	Cerrahpaşa	1980	Housewife	Clerk
18	OBG4	M	1947	İstanbul	0	M	2	Galatasaray	İTF	1975	OBG	Cerrahpaşa	1981	French Teacher	OBG
19	CVS5	M	1964	İstanbul	5	M	2	Kabataş Erkek L.	İTF	1987	CVS	Yüksek İhtisas H.	1992	Housewife	NCO
20	NS2	M	1947	İstanbul	2	M	2	Kabataş Erkek L.	İTF	1973	NS	Bakırköy Ruh&Sinir	1980	Housewife	NCO
21	ORT3	M	1959	İstanbul	1	M	2	İstanbul Erkek L.	İTF	1983	ORT	İTF	1992	Housewife	OBG
22	OBG5	M	1964	Bolu	1	D	2	Bakırköy Çavuşoğlu	İTF	1989	OBG	Avusturya Graz Unv.	1996	Dentist	Dentist
23	NS3	M	1961	İstanbul	(-)	M	1	İstanbul Erkek L.	İTF	1986	NS	İTF	1992	Housewife	NA
24	NS4	F	1958	İstanbul	0	M	2	Galatasaray	İTF	1984	NS	Cerrahpaşa	1993	Housewife	Bank manager
25	ORT4	M	1968	Ankara	1	M	2	TED Ankara	Ankara TF	1992	ORT	Marmara	2000	Teacher	Clerk at MTA
26	GS4	M	1962	İstanbul	1	M	1	Robert College	İTF	1986	GS	İTF	1996	Housewife	Businessman

APPENDIX C: PHOTOGRAPHS FROM THE OPERATING THEATERS

Photo 1: The Entrance to the OT

Photo 2: The OT corridors

Photo 3: The OT staff during a cardiovascular operation

Photo 4: Instruments used in a liver transplantation operation

Photo 5: Instruments used in an orthopedic operation

Photo 6: Instruments used in a neurosurgical operation

Photo 7: Instruments used in a gynecological operation

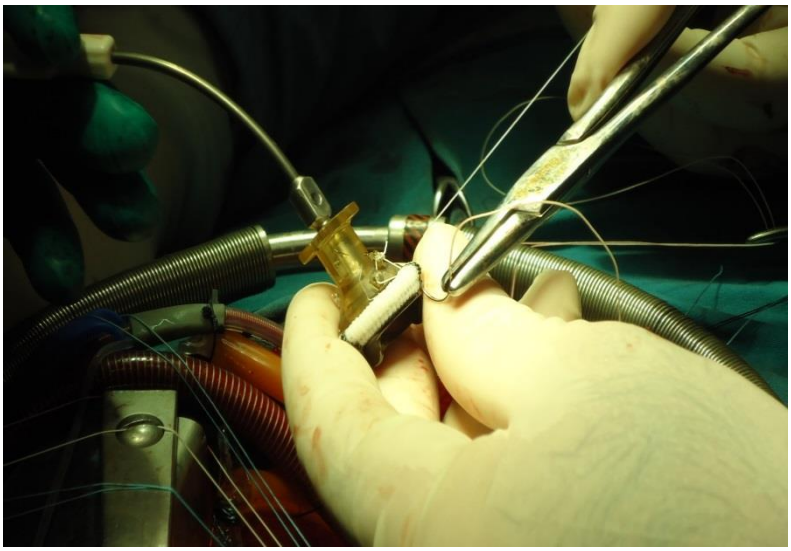

Photo 8: A cardiovascular surgeon makes more than 2000 knots in a cardiac valve operation

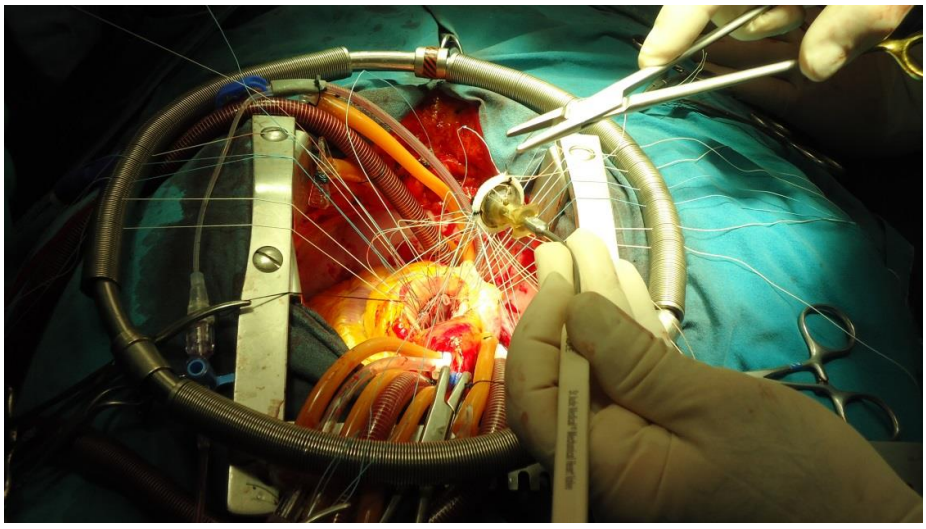

Photo 9: From a very complex cardiac valve operation

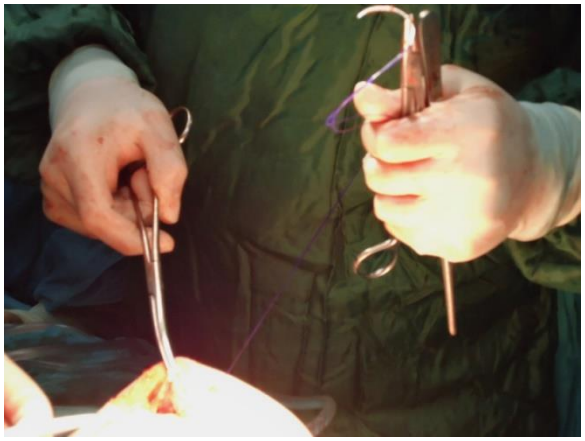

Photo 10: From a total stomach removal operation

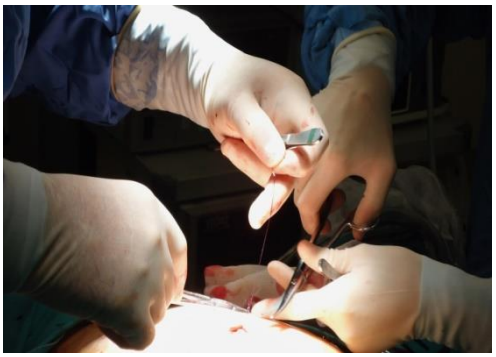

Photo 11: From a total stomach removal operation

Photo 12: From a total stomach removal operation.

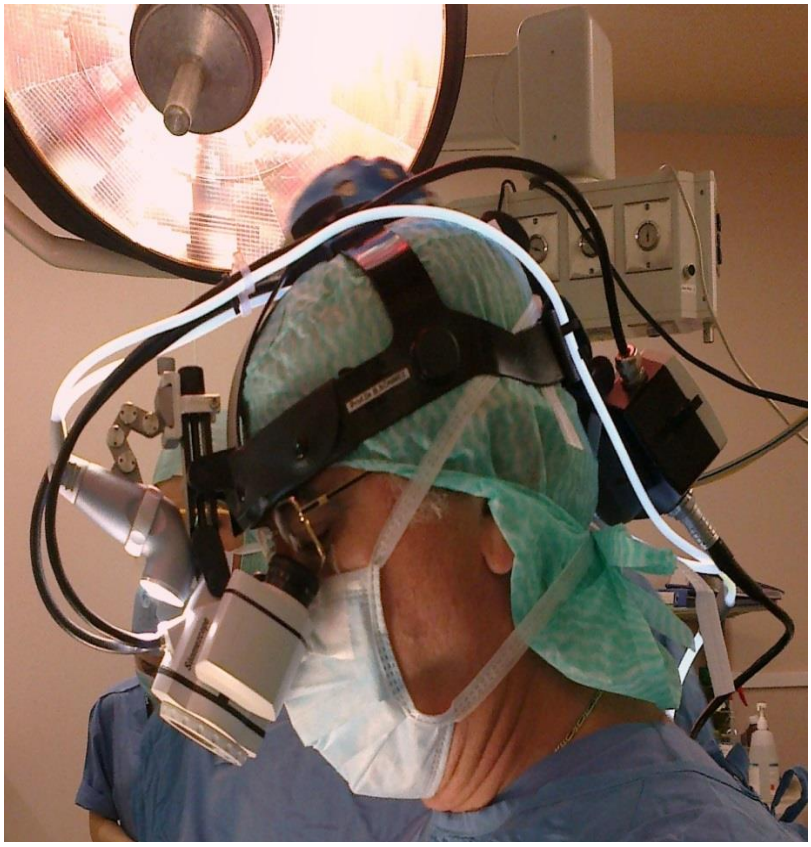

Photo 13: A cardiovascular surgeon and his glasses with 9.5x zoom

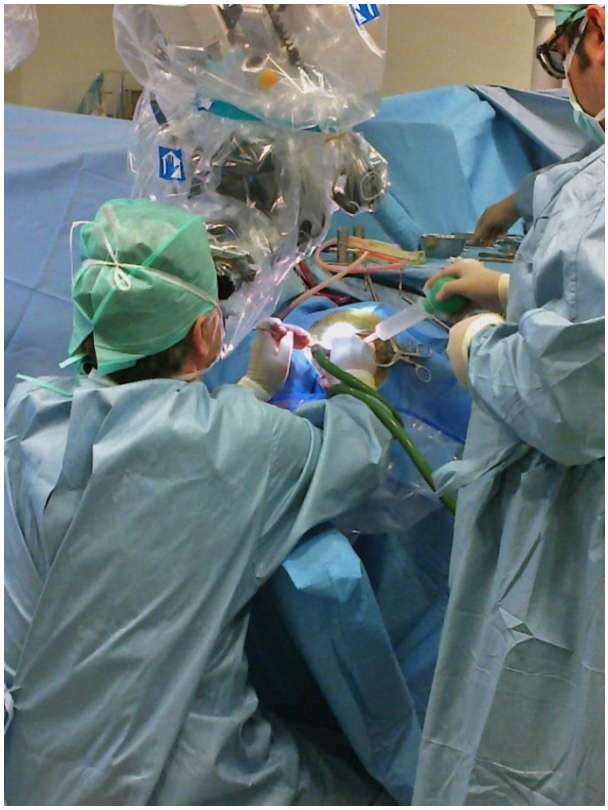

Photo 14: A neurosurgeon using a high power microscope

Photo 14: A general surgeon's hand using a laparoscopic instrument

Photo 16: Open surgery (above) vs. closed/laparoscopic surgery

Photo 16: Robotic surgery

Photo 17: The sterile arms of the surgical robot

APPENDIX D

TURKISH SUMMARY / TÜRKÇE ÖZET

CERRAHLIK ZANAATINI DEĞİŞEN TEKNOLOJİ, SAĞLIKTA DÖNÜŞÜM VE PİYASALAŞMA BAĞLAMINDA ANLAMAK: İSTANBUL'DA CERRAHLAR ÜZERİNE BİR ÇALIŞMA

Bir iş olarak cerrahlığı konu edinen bu çalışma cerrahlığın zanaat niteliğinin teknolojik değişim, sağlık hizmetlerinin dönüşümü ve sağlığın piyasalaşması süreçleri ile etkileşimini araştırmaktadır. Böylesi bir araştırmanın esin kaynağı cerrahinin teknoloji ile ilişkisinin sıra dışı bir durum sergilediği gözlemiydi. 20. yüzyıl boyunca teknolojik gelişmeler cerrahinin muazzam ölçüde etkinlik kazanmasını sağlayıp yüksek teknoloji kullanımı içeren bir alan haline getirmiş, bir yandan da daha karmaşık işbölümü ve bürokratik yönetim içerir olan hastaneler bünyesinde kurumsallaşmıştır. Buna karşılık cerrahi yine de zanaat niteliğini korumuştur. Ameliyathanelerde robot kullanımının söz konusu olduğu günümüzde bile cerrahi bir zanaat olmayı sürdürüyor. Böylelikle teknoloji, işbölümü ve uzmanlaşma ile yüz yüze gelen bir zanaatın çözülmesini öngören sosyolojik kabullerin tersine bir durum sergiliyor.

Bu sıra dışılığa bir açıklama getirmek üzere bu çalışma kapsamlı bir kavramsal analize girişmiştir. Birinci adımda "cerrahlık zanaatı" (*surgical craft*) altı bileşenden oluşan bir zanaat kavramsallaştırması temelinde tanımlandı. İkinci olarak bu tanım daha da detaylandırılarak, cerrahi "teknoloji güdümlü zanaat" (*technology-driven craft*) olarak kavramsallaştırıldı. Bir zanaat olarak cerrahide sıra dışılık arz eden teknolojik ilerleme sayesinde zanaat niteliğinin güçlenmiş olmasıdır ki bu da cerrahlara başka pek çok mesleğe kıyasla istisnai bir konum kazandırmaktadır. Tıp mesleğinin devlet, piyasa ve hastalarla ilişkisinde bir üstünlük konumu ya da güçlü bir otonomi tesis ettiği bir dönemde cerrahi de tıp alanındaki iş bölümü içerisinde bir

üstün bir konum elde etti. Sonuç olarak bu çalışmanın iddiası, bir profesyonel meslek olarak cerrahiye böylesine güçlü bir konum kazandıran zanaat niteliğine sahip oluşudur.

Çalışmanın ilk adımını cerrahlık işini, cerrahlık zanaatı olarak tanımlamak oluşturmaktadır. Altı bileşene dayalı bu kavramlaştırma, cerrahinin bir profesyonel meslek, bilimsel bir alan ve ellerle icra edilen bir iş olarak tüm veçhelerinin kapsamayı hedeflemiştir.

İkinci kavramsal adım cerrahlık zanaatının teknoloji güdümlü niteliğinin vurgulanmasıdır. Cerrahinin itibar kazanması, insan hayatını kurtarmada etkili olmasını sağlayan teknolojik yenilikler sayesinde mümkün olmuştur. Cerrahide bugün söz konusu olan teknoloji kullanımı yoğunluğu, teknoloji ile bu yakın etkileşimin bir sonucudur. Ayrıca 20. yüzyılın ikinci yarısından itibaren yaşanan teknolojik gelişmeler tıp sektörünü devasa bir sanayi alanına dönüştürmüştür. Bir ikilem arz ediyor gibi görünen nokta, teknolojinin cerrahide yoğunlaşmasının cerrahların işlerindeki rolünü azaltmamasıdır. Emek tarihi bir üretim alanında teknoloji yoğunlaşmasının çalışanların emek süreci üzerindeki denetimlerini kaybetmesine yol açtığı örnekler yönünden zengindir. Bunun sonucunda çalışanlar otonomilerini kaybeder, vasıfsızlaşır ve yabancılaşırlar. Oysa cerrahide bu durum söz konusu olmamaktadır. Cerrahi zanaat olarak var olmayı sürdürür ki bu da cerrahlık zanaatının teknoloji ile çelişki içerisinde olmadığının göstergesidir. Aksine teknolojiden faydalanmış, ikisi arasında karşılıklı mutlu bir beraberlik söz konusu olmuştur. Bunun başlıca nedeni yeni teknolojilerin cerrahlar açısından vasıfsızlaşmaya yol açmamasıdır, zira yeni teknolojiler onların vasıflarının yerini alan makineler olmaktan ziyade cerrahların denetimindeki yeni aletlere dönüşmektedir. Üstelik yeni teknolojiler cerrahların yeni vasıflar edinmesini de gerektirmektedir. Bu gözlem, görüşme yapılan cerrahlarca defaten doğrulanmış, cerrahlar sıklıkla teknolojinin kendilerini "daha iyi cerrah" yaptığını vurgulamışlardır. Bu da cerrahinin teknolojiyle olan paradoksal ilişkisini çözümlemek için zanaat kavramını kullanmanın gerekliliği sonucuna götürmektedir.

Cerrahi-teknoloji ilişkisinin arz ettiği ikilemin kavramsal düzeyde bu şekilde çözümlenmesinin ardından cerrahlara yönelik bir saha araştırması kurgulanmıştır.

Amaç teknolojinin bir profesyonel meslek üzerinde etkisini çözümlemede zanaat kavramının sunduğu imkânlardan faydalanmaktır. Bu noktadan hareketle, bugüne dek daha çok tıp mesleği genel kategorisi içinde ya da medikal antropoloji alanında çalışılmış olan cerrahlık mesleğine dair sosyolojik incelemelere özgün bir katkı sunmak hedeflenmiştir.

Yukarıda özetlenen kavramsal araçlarla *–cerrahlık zanaatı* ve *teknoloji güdümlü zanaat*- yola çıkan çalışmanın odağında Türkiye'de cerrahlar tarafından icra edildiği haliyle cerrahlık işinin zanaat niteliğini gözlemlemek bulunmaktadır. Türkiye cerrahlık zanaatını incelemek açısından uygun ve ilginç bir ortam sunmaktadır, zira Türkiye'deki cerrahlık pratiğinde iki düzeyde kapsamlı dönüşüm yaşandığı gözlemlenmiştir. Yeni görüntüleme ve teşhis teknolojilerinin getirdiği teknolojik değişimin yanı sıra laparoskopik ve robotik cerrahi teknikleri Türkiye'de yaygın olarak kullanılmaktadır. Öte yandan, Türkiye'deki sağlık sektörü gündemi, sağlık hizmetlerinde reform, özelleştirme ve metalaşma süreçlerince şekillendiğinden cerrahinin toplumsal bağlamının tüm boyutlarında köklü bir dönüşüm yaşanması itibariyle de Türkiye dikkat çekici bir vaka sunmaktadır.

Tezin analiz kısmına ve bulgulara geçmeden önce, tezin ilk bölümlerinde aktarılan kuramsal değerlendirmelerden hareketle bu çalışmanın cevaplamak üzere yola çıktığı üç temel araştırma sorusu tanımlanmıştır: Öncelikle, saha çalışması Türkiye'deki cerrahi pratiğinde cerrahlık zanaatının bileşenlerinin ne ölçüde gözlenebildiğini araştırmayı hedeflemektedir. Çalışmayı yönlendiren ikinci soru teknolojik değişimlerin cerrahlık zanaatına etkisine ilişkindir. Daha somut olarak, sorgulanan husus cerrahinin teknolojik değişim karşısında zanaat niteliğini ne ölçüde koruduğudur. Son dönemde cerrahi gündeminde başat yer tutan laparoskopik ve robotik cerrahinin gelişmesi bu soruşturma için elverişli bir vaka sunmaktadır. Kariyerlerinin farklı aşamalarındaki cerrahların bu yeni teknolojilerden nasıl etkilendikleri sorgulanarak cerrahlar arasındaki farklılaşma da inceleme konusu edilmektedir. Üçüncü olarak, bu çalışma cerrahlık zanaatındaki değişimi, Türkiye'de halen süregiden sağlıkta dönüşüm ve sağlığın piyasalaşması süreçleri bağlamına yerleştirmeyi amaçlamaktadır: Cerrahlar piyasalaşma ve dönüşüm süreçlerine nasıl uyum sağlamaktadır? Mesleklerinin zanaat niteliği taşıması tercihlerinde ve

benimsedikleri stratejilerde ne şekilde etkili olmaktadır? Yoğun teknoloji kullanıyor olmalarının etkisi nedir?

Bu sorulardan hareketle çalışma kavramsal ve ampirik düzlemde çeşitli akademik literatürlere anlamlı katkı sunmayı hedeflemektedir: (i) Bu çalışmada özgün olarak geliştirilen cerrahlık zanaatı kavramının cerrahlık mesleğini anlamanın yanı sıra yüksek teknolojiyle tanımlanan günümüz dünyasında zanaatın varlığını nasıl sürdürdüğünü incelemek için de yeni bir bakış açısı sunması beklenmektedir. Cerrahiyi bir iş olarak konu edinen çalışmaların nadirliğinden hareketle bu çalışma tıp mesleğine ve bir bütün olarak profesyonel mesleklere dair çalışmalara ampirik ve kavramsal bir katkı sunmayı amaçlamaktadır. Zanaat ile teknoloji arasındaki ilişkiye odaklanmakla çalışma sosyolojisin, zanaat kavramını profesyonel meslekleri incelemede alternatif bir çerçeve olarak önermekle de meslekler sosyolojisine katkı sunması beklenmektedir. (ii) Meslekler sosyolojisinin görece az gelişmiş olduğu Türkiye bağlamında bu çalışma gelişmekte olan yazına da anlamlı bir katkı sunmaktadır. Nitekim bu çalışmanın Türkiye'de cerrahlık mesleğini tek başına sosyolojik bir araştırmaya konu eden ilk çalışma olduğu söylenebilir. Bu bakımdan belki de ilk defa bir sosyal bilimci ameliyathaneye hasta olarak değil de araştırmacı olarak girmiştir. Daha genel tıp profesyonelleri kategorisinden ayrı olarak sadece cerrahlara odaklanmak uluslararası sosyal bilimler yazında da yaygın değildir. (iii) Saha çalışmasının zamanlaması çalışmanın Türkiye'de sağlık sosyolojisi yazınına katkı sunmasına da imkan vermektedir. Bu çalışma kapsamında cerrahlık zanaatının incelenmesi Türkiye'de sağlık sisteminin kapsamlı bir dönüşüm sürecinden geçtiği ve bu dönüşümün etkilerinin görüşülen cerrahlar tarafından günlük olarak deneyimlendiği bir zamanda gerçekleşmiştir. Reform politikası ve sağlıkta piyasalaşma süreci farklı boyutlarıyla sosyal bilimsel araştırmalara konu edilmiş ancak cerrahları ayrı bir sağlık çalışan grubu olarak ele almasıyla bu çalışma özgünlük arz etmektedir. Böylece teknolojik ve toplumsal değişimlerle etkileşimlerinde sağlık çalışanları içindeki farklı kategoriler arasındaki olası farklılaşmaları vurgulayan yeni bir bakış açısı sunma potansiyelini taşımaktadır.

Çalışmada yarı-yapılandırılmış derinlemesine görüşmeler ile hastane ve ameliyathanede gerçekleştirilen gözlemlere dayanan niteliksel bir yaklaşım tercih

edilmiştir. Saha çalışmasının tamamı İstanbul'da yürütülmüştür. Kamu ve özel hastanelerin, kliniklerin, sağlık kurumlarının, sağlık çalışanlarının ve sağlık harcamalarının oranları düşünüldüğünde İstanbul Türkiye'deki sağlık sektörünün merkezi olarak da görülebilir. İki yıl süren saha çalışmasındaki derinlemesine görüşmeler, 6 farklı cerrahi branşta (beyin cerrahisi, kalp cerrahisi, genel cerrahi, üroloji, jinekoloji ve ortopedi), kamu ve özel hastane ile kliniklerinde aktif olarak çalışan 26 cerrah ile yapılmıştır. Cerrahlar kliniklerde ve ameliyathanelerde işlerinin başındayken gözlemlenmiştir. Araştırma sürecinde 6 farklı branşta 15 ameliyata gözlemci olarak katılım olmuş ve toplamda 80 saatten fazla süre ameliyathane gözlemi gerçekleştirilmiştir.

Araştırma sonuçlarının çözümlenmesinin ilk bölümü cerrahlık zanaatının her bir bileşeninin Türkiye'deki cerrahların güncel pratiğinde ne ölçüde gözlenebildiğine ilişkindir. 5. Bölümde sunulduğu üzere bu bölümde hastanelerde ve ameliyathanelerdeki doğrudan gözlemler cerrahlar ile yapılan derinlemesine görüşmelerin sonuçlarıyla birleştirilmiştir. Ameliyathane gözlemleri cerrahları kendi çalışma ortamları içinde iş başındayken gözleme olanağı sunmuştur. Her bir bileşenin kapsamlı incelenmesi zanaat çerçevesinin cerrahlık işini gözlemleme ve çözümlemede işlevselliğini ortaya koymuş, böylece cerrahinin zanaat olarak tanımlanmasını doğrulamıştır. Yeni teknolojilerin yol açtığı değişim eğilimleri de her bir bileşen dahilinde kolayca tespit edilebilmiştir. İlk olarak vasıf boyutunun çözümlemesi teknolojinin cerrahları sürekli olarak yeni vasıf edinmeye yönelttiğini göstermiştir. Bu zorunluluğun cerrahlık eğitimi açısından da sonuçları olmuştur ki bu da usta-çırak ilişkisi bileşeni altında çözümlenebilir. Output bileşeni söz konusu olduğunda ise tedaviye dair kavrayışta bir farklılaşma olduğu, daha geleneksel ve kapsamlı iyileştirme kavrayışının yanı sıra daha dar içerikli bir tedavi/onarım yaklaşımın geliştiği gözlenmiştir. Özetlemek gerekirse, yeni teknolojilerin gözle görülür etkisiyle birlikte zanaatın hemen tüm bileşenlerinde değişim eğilimi tespit edilmiştir. Bütün olarak düşünüldüğünde ise bu değişimler cerrahi mesleğinde zanaat niteliğini geçersiz kılmamaktadır. Teknolojik ve toplumsal değişimlerin etkisiyle tüm bileşenlerinde ciddi farklılaşmalar gözlense de cerrahi bir zanaat olarak icra edilmeye devam etmektedir.

Cerrahinin teknoloji ile etkileşiminin daha ayrıntılı olarak analiz edildiği 6. bölümde, cerrahinin yapılış şeklinde kökten değiştiren teknolojiler iki kısımda özetlenebilir: Görüntüleme teknolojileri ve kapalı cerrahi tekniklerinin gelişimi, yani laparoskopik ve robotik cerrahi. Dijital görüntüleme teknolojileri muayenede ellerin rolüne etkisi ile tanı koyma aşamasını kökten değiştirmiştir. Yoğunlaşan teknoloji kullanımının bir başka etkisi ise cerrahide alt uzmanlaşmanın yaygınlaşması olmuştur. Temel cerrahi uzmanlıkları bedenin belirli organlarına, kısımlarına ya da hastalıklarına odaklanan daha dar alt uzmanlıklara bölünmüştür. Bu durum cerrahların insan bedenine ilişkin bütüncül bakış açısını kaybedeceklerine, tedavi sürecinin kavranışında iyileştirmeden onarıma doğru bir geçiş olacağına dair bir kaygıya yol açmıştır. Bu alt uzmanlaşma eğilimi cerrahlara göre bir zorunluluğun sonucuydu; zira artan bilgi düzeyi cerrahların bireysel olarak bir uzmanlık alanının tamamına hakim olmasını imkansız kılmaktadır. Ancak cerrahların hangi alt uzmanlık dallarına yöneleceklerine karar verirken başka etkenleri de dikkate aldıkları gözlenmiştir. Belli bir uzmanlığın piyasa değeri ya da vaat ettiği olası gelir ve hacim ile alt uzmanlıkların içerdiği riskler ve zorluklar, yani çalışma saatlerinin uzunluğu ve malpraktis davalarına muhatap olma riski/olasılığı, asistan cerrahların alt-uzmanlık tercihlerinde öneme sahip unsurlar olarak öne çıkmaktadır.

Cerrahlık teknolojisindeki güncel dönüşümde başlıca dönüm noktası insan bedeninde en az kesikle icra edilebilen cerrahi müdahaleleri mümkün kılan yepyeni yöntemleri ortaya çıkaran laparoskopinin geliştirilmesidir. Bu gelişmeye dair bulgular aşağıdaki noktalarla özetlenebilir:

i) *Yeni cerrahi beceriler:* Açık yerine kapalı tekniklere geçişle birlikte becerilerde kökten bir değişim ya da kopuş yaşanmıştır. Kapalı cerrahide cerrahlar iki boyutlu görüşle çalışmak zorundadır, oysa açık cerrahide üç boyutlu görüş vardır. Hastanın bedeninden ayrı bir yerde bir ekrana yansıtılan iki boyutlu görüntüye geçiş cerrahların el ve göz koordinasyonlarını farklı şekilde yapmalarını gerektirmiştir.

ii) *Usta-çırak ilişkisi:* Geleneksel/açık cerrahi teknikleri uzun eğitim dönemlerini gerektirmektedir. Bu eğitim sürecinde asistan cerrahlar, usta cerrah hocalarının ellerini izlemektedirler. Oysa kapalı/laparoskopik cerrahide ellerin kullanımı daha sınırlıdır ve cerrahi teknikler daha fazla standartlaşmıştır. Asistan cerrahlar, çıraklık

dönemlerinde bu kapalı teknikle yapılan ameliyatı bir ekrandan izlerler ve günümüzdeki video ve internet teknolojileri sayesinde bunun ameliyathanede yapılması zorunlu değildir.

iii) En önemlisi, kapalı cerrahinin gelişiyle yaşanan vasıf kopuşu Türkiye'deki cerrahlar arasında belirgin bir farklılaşmaya yol açmıştır. Çalışmanın bulguları teknolojiyle ilişkileri bakımından birbirinden farklılaşan üç kuşak ya da yaş grubunun varlığına işaret etmektedir. Bu kuşaklar, yaşlarına göre yaşlıdan gence doğru geleneksel kuşak, geçiş kuşağı ve genç cerrahlar şeklinde isimlendirilmiştir.

Geleneksel Cerrahlar (55 yaş üstü): Geleneksel cerrahlar kuşağının eğitim ve ustalık kazanma süreçleri bütünüyle klasik/açık cerrahi ile olmuştur. Eğitimleri klasik çıraklık usulüne göre gerçekleşmiştir. Çoğunlukla uzun yıllar boyunca kamu hastanelerinde ve üniversite hastanelerinde çalışmışlardır. Bazılarıysa akademik unvanlara sahiptir.

Açık cerrahide cerrahın eli bedenin iç kısımlarıyla doğrudan temas halindedir. Böylesi bir ameliyatta cerrah müdahale edilen alanın tümünü çıplak gözle görür, dolayısıyla üç boyutlu görüşe sahiptir. Cerrah doğrudan elleriyle çalışır ve cerrahlık mesleği için gerekli vasıflar da buna göre şekillenmiştir.

Ustalık aşamasına geldikten ve zanaatı uzun süre icra ettikten sonra mesleklerinde köklü bir dönüşümle karşılaşmışlardır. Kapalı cerrahi tekniklerinin 1990'ların başından itibaren yaygınlaşmasıyla birlikte, bu dönüşüme ayak uydurmak ya da eski usullerle devam etmek arasında tercih yapmak durumunda kalmışlardır. Bu kuşağın laparoskopik cerrahinin ortaya çıkması ve yayılması ile karşılaştıklarında kariyerlerinde bulundukları aşama cerrahinin tümüyle farklı bir şekilde yapıldığı bir tarza kaymayı zorlaştırmıştır. Öncelikle vasıflardaki değişim o kadar köklüydü ki yeni vasıfları edinmek adeta cerrahiyi yeni baştan öğrenmeyi gerektiriyordu, bu ise özellikle ileri yaşlardakiler için son derece zordu. İkincisi, bu kıdemli cerrahların yeni teknikleri kendilerine oranla daha yeni teknolojilere daha yatkın ve hazır olan genç meslektaşları ile birlikte öğrenmeleri gerekiyordu. Bu etmenler yeni tekniklerin cazibesini yok ediyor olsa da hem cerrahlık camiasının hem de hastaların bu yeni teknikleri tercih etmesi onları zor bir duruma sokuyordu. Belirli uzmanlık ve alt uzmanlık alanlarında bu durum daha belirgindi zira laparoskopik teknikler bu

alanlarda norm haline gelmekteydi. Bu çalışmada konu edilen cerrahi branşları arasında genel cerrahi, jinekoloji ve üroloji bu süreçten en fazla etkilenmiş, kalp cerrahisi, beyin cerrahisi ve ortopedi alanlarında klasik cerrahi hakimiyetini sürdürmektedir.

Geleneksel cerrahlar kuşağındaki cerrahların görüşmelerinden elde edilen bulgular karşılaştırıldığında, farklı eğilimler tespit edilmiştir: İlk olarak, kapalı cerrahiye hemen uyum sağlayanlar vardır. Proaktif bir tutum alarak, güncel eğilimlerle uyum içinde kendilerini dönüştürmüşlerdir. Ne var ki sayıları sınırlıdır. İkinci olarak, yeni teknikleri öğrenmeye hiç girişmemiş olanlar geniş bir grup oluşturmaktadır. Bu cerrahlar muhafazakâr bir tutumu benimsemiş, klasik/açık cerrahide devam ve ısrar etmişlerdir; bu muhafazakar cerrahlar, cerrahlık zanaatının özünün de bu olduğunu savunmaktadırlar. Üçüncü olarak, görüşmelerde cerrahların aktardıkları şekilde uyum sağlayamamış ama bunu açıkça kabul etmeye yanaşmayan ve bir şekilde kapalı cerrahi icra ediyormuş gibi yapanlar vardır. Bu davranışa yönelten neden, bir yandan hakim oldukları açık cerrahiye devam ederken, kapalı cerrahi talep eden hastalarını kaybetmemeye çalışmalarıdır.

Kapalı cerrahinin bu gruptaki cerrahlar tarafından ortak olarak vurgulanan dezavantajları ameliyat sürelerinin uzunluğu ve bir komplikasyon durumunda açık cerrahiye geçilme zorunluluğudur. En fazla vurgu yapılan nokta ise ölümcül risk olarak tanımladıkları, bir kanama gibi ciddi bir komplikasyon halinde hastanın kaybedilmesi ihtimalidir.

Özet olarak, geleneksel cerrahlar genellikle 55 yaşın üstündedir, eğitimlerini geleneksel usta-çırak ilişkisi içinde tamamlamışlardır. Genellikle teknolojik yenilikler konusunda bilgilidirler ve çoğunu kullanırlar. Ancak kapalı cerrahiyi zanaatlarının bir parçası olarak bütünüyle icra edememektedirler. Bu bakımdan mesleklerinde muhafazakâr bir tutum alırlar.

Geçiş Dönemi Cerrahları (35-55 yaş aralığı): Geçiş dönemi grubunda yer alan cerrahlar, kapalı cerrahi teknikleri yayılmaya başladığında ya uzmanlık eğitimlerine devam etmekteydi ya da kısa süre önce bitirmişlerdi. Bu grubun tanımlayıcı özelliği olan bu durum onlara avantajlı bir konum kazandırmıştır. Bir dizi nedenden ötürü

yeni teknolojilere kolayca uyum sağlayabilirken bir yandan daha yaşlı kuşakların ustalık ve deneyiminden faydalanabilmişlerdir:

İlk olarak geleneksel eğitim deneyimini bütün olarak yaşamış, açık ameliyatlarda "el izlemek" de dahil tüm aşamalardan geçmişlerdir.

İkincisi, kapalı cerrahi yaygınlık kazanmaya başladığında kariyerlerinin erken aşamalarında olduklarından yeni beceriler edinmeye açık olmuşlardır. Bir yandan da bunu kaçınılmaz olarak görmüşlerdir. Zira yeni tekniklerin kendi kariyerleri sürecinde giderek daha fazla kural haline geleceklerine öngörebilmişlerdir.

Son olarak, daha yaşlı cerrahlarla kıyaslandığında dijital teknolojilere, bilgisayarlara ve bilgisayar oyunlarına daha aşinaydılar ve bu türden araçları kullanmaya daha açıktılar.

Yine cerrahi teknolojilerin kullanımı açısından bu grup kendi içinde iki alt gruba da ayrıldığı bulgulanmıştır. Birinci alt grup 45-55 yaş aralığını, ikincisi ise 25-45 yaş grubunu içerir:

- *45-55 yaş aralığındaki* cerrahlar, bir anlamda treni son dakikada yakalamış olan gruptur. Özellikle açık cerrahide deneyimlidirler ve üstelik laparoskopik teknikleri de repertuarlarına katabilmişlerdir.

- *35-45 yaş aralığındaki* cerrahlar ise genellikle çocukluklarında bilgisayar oyunları oynayarak büyümüşlerdir, teknolojiye son derece açık ve yatkındırlar. Diğer alt grupla kıyaslandığında laparoskopiye daha yakındırlar, çünkü bu yeni teknik Türkiye'de yaygınlık kazanmaya başladığında eğitim süreçleri devam etmekteydi. Böylece uzmanlık eğitimleri sırasında kapalı cerrahinin gelişiminden haberdar olmuşlar ve çoğu gözlemek ve deneyimlemek şansı bulmuştur. Bilgisayarlar ve video oyunlarıyla aşinalık bu alt grup tarafından, oyunlar için kullanılan joystick benzeri çubukları kullanmakta ya da ekrandaki hareketleri takip etmekte kendilerini daha becerikli kıldığı için sıklıkla olumlu bir unsur olarak vurgulanmıştır. Laparoskopik teknikler iki-boyutlu uzamda düşünmeyi, tahayyül etmeyi ve işlem yapmayı gerektirir. Bilgisayar ekranında oynamaya ve çalışmaya yatkınlıkları sayesinde bu becerileri bir ekrana yansıtılmış beden görüntüsü üzerinde çalışmaya da transfer edebilmişlerdir.

35-55 yaş aralığındaki cerrahlar bir geçiş kuşağı olarak nitelenebilirler, zira açık cerrahiye dayalı bir eğitimden kapalı cerrahinin icra edilmesine geçiş yapmak zorunda kalmışlardır. Hem açık hem de kapalı cerrahi için gereken becerilere sahiplerdir; bu da kapalı cerrahi sırasında açık cerrahiye geçişi gerektirecek komplikasyon durumlarıyla kolaylıkla baş edebilecekleri anlamına gelir. Bu bakımdan bu kuşağı hem daha yaşlı (geleneksel) hem de daha genç kuşaklara oranla daha avantajlı ve daha vasıflı kabul edebiliriz. Açık cerrahide eğitim almış ve deneyim kazanmış olmakla birlikte kapalı cerrahiyi de uygulayabilir olduklarından neşter ile çubuklar arasında daha kolay geçiş yapabilmektedirler. Ustalarının sahip olmadığı ilave becerilere ve bilgiye sahip olduklarından daha yaşlı cerrahlar onlara danışmak ihtiyacı duyabilmektedir. Dolayısıyla bazı durumlarda kendi ustalarına ustalık/hocalık yapmaktadırlar.

Sonuç olarak açık cerrahini bütün cerrahinin temelini teşkil ettiği tartışmasızdır. Açık cerrahiye ilişkin beceriler olmaksızın cerrahinin düzgün şekilde icra edilmesi mümkün değildir. Bunun temel nedeni ise bir iç kanama ve benzeri komplikasyon hallerinde açık cerrahiye dönüşün yegane seçenek olmasıdır. Bu koşullarda geçiş kuşağındaki cerrahlar kendilerinden daha yaşlı ve daha genç cerrah kuşaklarının ikisine karşı daha avantajlı bir konum elde etmektedirler. Geleneksel kuşağa kıyasla kapalı cerrahiye çok daha kolay uyum sağlayabilmişlerdir; öte yandan da açık cerrahi için gerekli tüm becerileri ve bilgi ile deneyimleri edinmişlerdir, oysa daha genç kuşak bunları edinmek için giderek daha az fırsata sahip olmaktadır.

Genç Cerrahlar (35 yaş altı): Bu çalışmada genç cerrahlar kuşağı olarak adlandırılan cerrahlar, en genç ve daha az deneyimli olanlardır. Çocukluklarından itibaren bilgi ve iletişim teknolojilerine daha alışkındırlar, böylece kapalı cerrahiyi öğrenmeye daha yatkın olmuşlardır. İki boyutlu görüntülerle çalışmayı öğrenmek onlar için daha kolaydır. Ancak açık cerrahi için gerekli becerileri geliştirmek için daha kısıtlı olanakları olduğundan kariyerlerine belirgin bir dezavantajla başlamaktadırlar. Teknolojik değişimlerin eğitim sitemlerini de etkilediği, geleneksel "ustanın elini izleme" yönteminin giderek tedavülden kalktığı ve teknoloji-yoğun cerrahinin baskın hale geldiği bir dönemde eğitimlerini almaktadırlar. Söz konusu olan etmenler teknolojiyle de sınırlı değildir. Kapalı cerrahiye talebin giderek artışı da açık cerrahinin eğitim süreçlerine dahil edilmesini sınırlandırmaktadır.

Bu noktada, 3. bölümde tartışılmış olan sağlık hizmetlerinde yürürlükte olan dönüşüm politikası da bir etken olarak ortaya çıkmaktadır. Yeni kısıtlamalar ve ücret sistemleri neticesinde deneyimli ve tanınmış profesörlerin büyük bir oranda özel sektöre geçmesi üniversite hastanelerinde ve diğer kamuya ait eğitim ve araştırma hastanelerinde kadroların ciddi ölçüde zayıflanmasına yol açmıştır. Bu türden eğitim olanaklarının kısıtlılığı karşısında yeni yöntem ve çözümlerin geliştirilmesi gerekecektir. Mevcut durumda uzmanlık eğitimi almakta olanların bu boşluğu doldurmak için başvurdukları bir yöntem tematik kurslara ve simülasyona dayalı eğitim programlarına katılımdır.

Sonuç olarak Türkiye halen çalışmakta olan cerrahlar ile çıraklık aşamasında olanlar cerrahi teknolojileriyle ilişkileri bakımından kendi aralarında çarpıcı farklılıklar sergilemektedir. Bu durum şüphesiz cerrahi teknolojisindeki dönüşümün bir yansımasıdır, zira gerekli vasıflarda çarpıcı bir değişim yaşanmıştır. Bu aynı zamanda cerrahların söz konusu değişimlere verdikleri tepkilerin de bir sonucudur ki bu tepkiler de genel anlamda teknolojiyle ilişkileri, çocukluktan itibaren teknolojiyle deneyimleri ve zanaattaki ustalık düzeyleri tarafından şekillenmektedir.

iv) *Cerrahi içindeki geleneksel hiyerarşi dönüşüm geçirmektedir.* Genç kuşaklar yeni teknolojilere ustalarından daha hızlı uyum sağlayabildiğinden kıdem düzeylerine dayalı geleneksel hiyerarşi zayıflamaktadır.

v) *Tıp eğitimi dönüşmektedir*. Bilişim ve iletişim teknolojilerindeki değişimler cerrahlık eğitimi için yeni mecralar sunmaktadır. Öte yandan, hasta haklarının artan önemi ve malpraktis düzenlemeleri asistan cerrahların hasta bedenine doğrudan müdahalesini kısıtlamaktadır. Video teknolojileri ve simülasyona dayalı eğitimler ise telafi edici çözümler sunmaktadır.

Bir bütün olarak düşünüldüğünde teknolojinin artan yoğunluğu cerrahinin zanaat niteliğini ortadan kaldırmamaktadır, ancak bazı bileşenlerini dönüştürmekte ya da zayıflatmaktadır. En başta da zihin-kol birlikteliğini koruyor olmasıyla zanaat niteliğini sürdürmektedir. Ameliyathanede robotların kullanılmaya başlanması dahi cerrahın rolünü zayıflatmamakta, cerrahın ellerinin üstünlüğü ve işteki hakimiyeti devam etmektedir. Bir başka deyişle, cerrahi teknolojiler cerraha yardımcı olan

araçlar olarak işlemekte, başka üretim alanlarında gözlendiği şekilde cerrahın vasıflarının yerini almamaktadır.

Tezdeki analizin üçüncü aşaması 7. bölümde sunulduğu şekliyle teknoloji ile cerrahlık zanaatının etkileşimini şekillendiren ve bu etkileşim tarafından şekillendirilen toplumsal bağlama ilişkindir. Bu kısımda üç başlık öne çıkmaktadır. Cerrahi üzerine etki eden birinci önemli süreç *sağlık sistemindeki dönüşüm*dür. Bununla bağlantılı olarak, hastanelerin özelleştirilmesi ve şirketleşmesi cerrahların içinde çalıştıkları örgütsel ortamı değiştirmektedir. Nihayet, *hastanın rolündeki değişimler* de önem arz etmektedir. Sağlık bilgisine erişimin artmasıyla birlikte hastalar "bilgili hastalar"a dönüşmekte, cerrahlarla ilişkilerinde daha talepkar olmaktadır. *Metalaşma* sürecinin sonucunda ise hastalar hastaneler ve cerrahlar tarafından giderek müşteri olarak görülmektedir. Toplamda bu üç başlık çalışmanın başında geliştirilen ve *devlet*, *piyasa* ve *hasta* kategorilerini içeren üçlü çözümleme çerçevesi ile örtüşmektedir.

Türkiye'de cerrahlara ilişkin geliştirdiği altılı tipoloji bu çalışmanın sunduğu bir diğer özgün bir katkıdır. Bu tipoloji cerrahların cerrahlık zanaatı, cerrahi teknoloji ve cerrahinin teknolojiyle etkileşimine etki eden toplumsal süreçlerdeki değişimlere verdikleri tepkileri özetlemek ve sınıflandırmak üzere geliştirilmiştir. Bu bakımdan bu tipoloji, tezin ilk analizi olarak bulgulanan kuşaklara dayalı sınıflandırmayı da derinleştirmektedir. Tipolojinin altı bileşeninden her birinde cerrahların teknoloji, piyasa, sağlık sistemi reformu ve tedaviye (*output*) yaklaşım başlıklarındaki tutumları özetlenmektedir.

Proaktif Cerrah: Bu kategorinin tanımlayıcı özelliği cerrahideki teknolojik ve örgütsel değişimlere başarıyla uyum sağlamış olmalarıdır. Görece yaşlı cerrahlar söz konusu olduğunda, yeni teknolojilerin gerektirdiği yeni vasıfları edinmeyi başarmış ya da becerilerini itibarlı konumlara transfer edebilmişlerdir. Son derece rekabetçilerdir ve tüm tıbbi yenilikleri izlemekte ve kendi pratiklerine uyarlamakta ısrarcılardır. Sağlık endüstrisinin talep ve baskılarının yanı sıra hastaların yeni teknolojilere yönelik talebi onları bu yöne sevk eden önemli etkenlerdir. Başka bir deyişle, piyasa baskılarıyla baş edebilmek için yeni eğilimleri öngörmeye çalışır ve takip ederler. Bu bağlamda piyasa ile aralarında bir karşılıklılık ilişkisi oluşur:

Bilimsel ve teknolojik yenilikleri yakından takip etmeleri sayesinde yeni teknolojilere yoğun yatırım yapan şirketlerde pozisyon bulabilirler; böylelikle pahalı teknolojilere erişim imkanı da elde ederler. Şirketlerle girilen böylesi bir ilişki bir yandan da cerrahların cerrahlık zanaatının geleneksel olarak parçası olmayan başka becerilere de sahip olmalarını gerektirir. Sözgelimi, öncelikle yöneticileri ve özel hastane sahiplerini böylesi teknolojilere yatırım yapmaya ikna etmeleri gerekir. Kısaca, bu gruptaki cerrahlar sağlık piyasasındaki yeni dinamiklerle uyumlu çalışma eğilimindedir. Kamu hastanelerinde çalışanlar dahi kamu yönetimindeki genel eğilimler doğrultusunda işletme odaklı becerileri işlerine entegre ederek proaktif tutumlar sergileyebilir. Sağlık sisteminin dönüşümü başlığına ilişkin olarak da bu gruptaki cerrahlar genellikle bu dönüşüm sürecinden fayda sağlamıştır ve dönüşüme destek verirler. Bunun bir sebebi dönüşüm programının sağlıkta özel sektörü güçlendirerek daha fazla hasta hacmi ve teknoloji yatırımı yaratmış olmasıdır. Tedaviye yaklaşımları ise daha çok iyileştirmeden ziyade onarım odaklıdır ve hastalarını müşteri olarak görürler. Geleneksel ve geçiş kuşağı gruplarının ikisinden de cerrahlar bu grup içinde bulunabilir. Hem kapalı hem açık ameliyat tekniklerinde ustadırlar. Kamu-özel ayrımı bakımından kamu hastanelerinde çalışan cerrahların da proaktif bir tavır alması mümkündür. İşletmelere özgü yönetim ilkelerinin kamu sağlık sektörüne nüfuz etmesi bu türden cerrahların idari görevler üstlenerek ya da hastanelerinin pahalı yeni teknolojilere yatırım yapmasını sağlayarak liderlik konumlarına gelmesinin önünü açmıştır.

Butik Cerrah: Bu gruptaki cerrahlar da teknolojiyle yakın ilişki içindedir. Bu kategorinin butik ifadesiyle nitelenmesinin nedeni herhangi bir hastane bünyesinde ücretli çalışmayıp kendi muayenehanelerinde bağımsız çalışıyor olmalarıdır. Sözleşme temelinde ameliyatlar yaptıkları bir veya daha fazla hastaneyle bağlantıları vardır, bunun haricinde bağımsızdırlar ve mesleklerinde oldukça özerktirler. Bu türden "solo pratik" doktorluk mesleği için yeni bir durum değildir, hatta sağlık hizmetlerinin kurumsallaşması öncesinde, örneğin ABD'de, adeta norm halindeki bir çalışma biçimiydi. Türkiye'de ise cerrahlar arasında daha seyrek görülür, zira bir cerrahın bu türden bir bağımsızlık edinmesi zordur. Bu kategorideki cerrahlarda mesleklerinde tanınmışlık/ün zorunludur; halkla ilişkiler veya tanıtım için ise kendi kaynaklarını kullanmaları gerekir. İnternet temelli yeni teknolojiler ve sosyal medya

olanakları kendilerini marka olarak sunmaları için daha fazla araç sunmaktadır. Uzun yıllar akademik pozisyonda çalışmış olmaları yaygın bir durumdur zira tanınır olmak açısından daha elverişlidir. Kendi işyerlerinin sahibi olmaları bakımından girişimcilik becerilerine sahip oldukları söylenebilir. Bununla birlikte sundukları tedaviler de ticari işlem niteliği kazanır. Hastalarının büyük çoğunluğu kapsamlı özel sağlık sigortası poliçeleri satın almıştır ya da harcamaları cebinden yapmaktadır. Hastanede çalışan cerrahlara oranla yaptıkları ameliyat sayıları daha düşüktür. Çoğunlukla sınırlı, seçkin bir müşteri grubuna, az sayıda iş ama yüksek kaliteli sağlık ve tedavi hizmet sunmaları nedeniyle kelimenin tam anlamıyla zanaatkar olarak tanımlanabilirler. Sekreter ve yardımcı eleman istihdam ederler, hastane ortamı dışında kullanılabilecek belirli tanılama ve tedavi araç gereçlerine yatırım yaparlar. Bu bakımda muayenehaneleri bir işletme gibidir. Bir işletme olarak da risklerle karşılaşırlar ki, bu riskler karşısındaki güvenceleri aslında zanaattaki ustalıkları sayesinde sahip oldukları şöhrettir. Türkiye'deki sağlık sisteminde yaşanan dönüşüm ve piyasalaşma sürecinden fayda görenler arasında değerlendirilmeleri gerekir.

Akademik Cerrah: Bu kategorideki cerrahlar akademik görev ve unvana sahiptir, halen üniversitede çalışmaktadır ya da geçmişte çalışmıştır. Pek çoğu yakın tarihlere dek kamu üniversitelerinde çalışmıştır; yine çoğunluğu halen özel hastanelerde çalışmaktadır; bazıları ise vakıf üniversitelerindeki tıp fakültelerindedirler. Bu grupta ortak olan nokta tümünün akademik kariyer sahibi olmasıdır. Bunun ötesinde teknolojiyle ilişkileri, hastalara ve tedavi sürecine yaklaşımları açısından da benzerlikleri vardır. Saha çalışmasındaki görüşmelerde sağlık sistemindeki dönüşüm en çok bu gruptaki cerrahlar tarafından gündeme getirilmiştir, zira uzun süre çalıştıkları üniversite hastanelerinden yakın tarihlerde ayrılmış olmalarının nedeni genellikle söz konusu dönüşüm programın içerdiği uygulamalardır. Bu nedenle, dönüşüm politikasına dair kızgınlık hissetmektedirler, üniversite hastanelerinin durumu ve tıp eğitiminin geleceği konularında kaygılıdırlar. Usta-çırak ilişkisi, özellikle bu gruptaki cerrahlar için önemlidir ve artık asistan cerrahlar yetiştirememekten ötürü üzüntü ifade etmektedirler. Üniversitede çalıştıkları dönemi, ameliyat yapma, asistan cerrahları eğitme, araştırma yapma ve ders verme faaliyetleriyle zanaatlarını tam olarak icra edebildikleri zaman olarak hatırlarlar. Başka açılardan dönüşümden faydalananlar arasında yer alırlar, nitekim tanınmış

özel hastanelerde iyi pozisyonlar bulabilmişlerdir. Bu değişimle birlikte hastalarının sosyo-ekonomik açıdan genel profili de değişmiştir; yine de önceki iki grupta görüldüğü ölçüde ticari tutumlar sergilemezler. Cerrahi teknolojiyi yakından takip ederler ve hem açık hem de kapalı cerrahide ustalık sahibidirler. Hastalara yaklaşımlarında daha fazla diğerkamlık hakimdir, tedaviye yaklaşımları da daha çok iyileştirme odaklıdır.

Yenilikçi Cerrah: Bu cerrahlar teknolojiye aşıktır. Yeni bir tıbbi cihaz, belli bir hastalık için yeni bir cerrahi usul ya da daha önce tedavi edilemeyen bir hastalık için bir tedavi geliştirmişlerdir. Yeni cerrahi teknolojilere daha fazla erişim talep ettiklerinden piyasa aktörleri ile ilişkilerinde de daha proaktif tutum alırlar. Tıp teknolojilerine yoğun yatırım yapan özel sağlık kurumlarında çalışırlar. Sağlıkta dönüşüm söz konusu olduğunda, ya bu süreçten etkilenmemiş ya da kamu hastanelerinden özel kurumlara geçerek faydalanmışlardır. Bu kategorideki cerrahlar akademik cerrah ve proaktif cerrah kategorileri içinde de görülebilir. Yaş açısından daha büyük ölçüde geçiş kuşağına mensupturlar. Dolayısıyla hem açık hem kapalı cerrahide ustalık sahibidirler. Tedaviye yaklaşımları iyileştirme ile onarım arasında gider gelir. Özel sektörde çalışmaktaki temel motivasyonları yüksek gelirden ziyade araştırma ve geliştirme ortamı talep etmeleridir.

Nostaljik/Muhafazakâr Cerrah: Bu kategorideki tüm cerrahlar geleneksel kuşak mensubudur. Açık cerrahide öncelik vermekte ısrarcıdırlar ve kapalı cerrahi tekniklerine daha mesafeli dururlar. Teknoloji değerlendirmesinde daha seçicidirler ve tıp teknolojisindeki her yeniliğin doğal olarak sağlıkta iyileşme sağladığını düşünmezler. Açık cerrahide kapsamlı deneyime sahip usta cerrahlardır. Cerrahlık zanaatın eski usullerine özlem duyarlar. Sağlık sistemindeki dönüşüme kesin olarak muhaliftirler. Kamu hastanelerinde ya da üniversite hastanelerinde çalışmaya devam ederler, özel muayeneleri olanlar kapatmıştır. İlkesel olarak özel hastanelerde çalışmayı reddederler; genellikle bu türden bir kariyerin gerektirdiği cerrahi harici becerilere de sahip değildirler. Yüksek ölçüde diğerkâmlık sergileyen cerrahlardır, tedaviye yaklaşımları da bununla bağlantılı olarak iyileştirme odaklıdır.

Loser Cerrah: Bu kategori geleneksel ve geçiş kuşaklarındaki yeni teknolojilere uyum sağlayamamış cerrahları kapsar. Bu kategori içinde iki alt grup da saptanabilir:

(i) Hem loser cerrahlar grubuna hem de geleneksel kuşağa mensup cerrahlar açık cerrahide oldukça maharetlidir fakat yeni teknolojilere ve kapalı cerrahiye direnç gösterdikleri için kısmen de ileri yaş dezavantajından ötürü uyum sağlayamamıştır.

(ii) Yaş itibariyle geçiş kuşağında olanlar açısından, öte yandan, uyumda başarısız olmalarının bir nedeni kariyerlerini erken dönemlerini küçük taşra şehirlerinde geçirmiş olmalarıdır. Becerilerini güncellemek için yeterli olanak ve motivasyondan yoksun olduklarından yeni tekniklerin gerisinde kalmışlardır, kendi yaş grubunda olanların bazıları gibi kapalı cerrahide ustalaşamamışlardır. Yabancı dil becerilerinde zayıflık bu gruptaki cerrahlar bir diğer handikap olmuştur. Cerrahi teknolojisindeki gelişmeleri takip etmek uluslararası kongrelere yoğun katılımı, yurtdışında ameliyat izlemeyi veya internet üzerinde giderek daha erişilebilir olan görsel materyali takip etmeyi bunlar ise bir veya daha fazla Batı diline hakim olmayı gerektirmektedir. Sonuçta bu gruptaki cerrahların çoğu görece vasat özel ve kamu hastanelerinde pozisyon bulmakta, çoğunlukla geleneksel açık cerrahi ameliyatları yapmaktadır. Sağlığın metalaşması konusunda kesin görüşler ifade etmemektedirler, hem sağlıkta dönüşüm programına hem de tedaviye yaklaşımdaki iyileştirme – onarım ayrımına kayıtsız kalmaktadırlar.

Loser cerrahlar için belirtilebilecek genel hususlardan biri de cerrahlık zanaatına dair motivasyonlarında azalma işaretleri sergiledikleridir. Diğer tüm kategorilerin aksine, cerrahiyi daha çok bir iş olarak görmektedirler ki, yeni teknolojilerle uyumsuzlukları ile birleştirildiğinde bu onları hoşnutsuz cerrahlar haline getirmektedir.

Sonuçta, farklı boyutlardaki dönüşümlerle nasıl etkileştiklerine bağlı olarak üretilen cerrah tipolojisi cerrahların kendilerini karmaşık bir etkileşimler ağı içinde bulduklarına işaret etmektedir. Yeni vasıflar edinme yoluyla teknolojik değişimle baş etmek durumundayken bir yandan da sağlık sektörü içinde kamu ve özel aktörlerin değişen bileşimi ve hastaların değişen tutum ve beklentilerine yanıt vermeleri gerekmektedir. Bu etkilere nasıl yanıt verdikleri ise nasıl bir örgütsel ortam içinde çalışacaklarını, gelir düzeylerini ve günlük iş yükü ile rutinlerini belirlemektedir.

Cerrahinin icra edilişi şekli bir dizi teknolojik değişim sonucunda birkaç boyutta değişime uğradı. Tanı süreçlerinde cihazlar büyük ölçüde cerrahın el becerilerinin

yerini aldı, bu da onları radyologlar gibi başka uzmanlara daha fazla bağımlı kılarken bir yandan da yeni cihazların ürettiği görüntüleri yorumlayabilmek için yeni beceriler edinmelerini gerektirdi. Bunun anlamı ise aynı anda hem vasıfsızlaşma (*de-skilling*) hem de yeni vasıflar edinmeleridir (*re-skilling*). Bu değişiklikler hastalarla ilişkilerini de etkilemiş ve hastalarla fiziksel ve duygusal temaslarını azaltmıştır.

Ayrıca daha temel bir düzeyde, cerrahlık zanaatının temel unsurlarında önemli değişikler söz konusudur. Cerrahlık zanaatının devlet, piyasa ve hastalar karşısında sahip olduğu otonomi düzeyi değişmektedir; teknolojik ve örgütsel değişimlerin sonucunda usta-çırak ilişkisi zayıflamaktadır ve nihayet zanaatla ilişkilendirilen kişilik özellikleri ve tutumlar –cerrah kişiliği ya da etosu- sağlığın piyasalaşması, tüketim kültürünün yükselişi ve cerrahlık mesleğinin kamu odaklı algılanışının zayıflaması karşısında dönüşüm geçirmektedir. Bu son nokta tedaviyi nasıl tanımladıklarına –bütüncül bir iyileşme süreci olarak mı yoksa bedende bozulan kısımların/organların onarım süreci olarak daha uzmanlaşmış ve indirgemeci bir bakış mı- yansımaktadır. Tedavinin onarım olarak görülmesi hastalarla duygusal temasın azalmasına, tanı için teknolojiye daha fazla bağımlılığa ve aşırı uzmanlaşma eğilimine eşlik etmektedir. Bütün bunlar hastalar açısından daha fazla teknoloji ve uzmanlaşmış cerrah talebi gibi değişen tutumlarla ve piyasalaşmış sağlık hizmetlerinin etkisiyle birleştiği ölçüde bu eğilim daha da güçlenmektedir, zira cerraha maddi fayda ve mesleki başarı imkanı sunmaktadır.

Bu koşullar altında cerrahlar vasıf düzeyleri ve zanaatla özdeşleştirilen geleneksel değerlere bağlılıklarına bağlı olarak farklı hatlar izleyebilmektedir. Hem cerrahi hem de cerrahi dışı beceriler bakımından rekabet avantajına sahip olanlar gelir, itibar ve teknolojiye erişim anlamında daha avantajlı pozisyonlar için pazarlık edebilirler. Günümüz Türkiye bağlamında bu gruptaki cerrahlar eğitimlerini ve ilk deneyimlerini kamu veya üniversite hastanelerinde edinmiş, çıraklık dönemlerini eski kuşaktan ustaların yanında tamamlamış, dolayısıyla daha güncel piyasalaşma, özelleştirme ve metalaşma eğilimleriyle tam olarak uyumlu olmayan daha geleneksel bir mesleki ortam içinde sosyalleşmişlerdir. Bu nedenle, teknolojiyle ilişkileri anlamında geçiş kuşağına mensup olmakla birlikte sağlık sisteminin daha piyasa odaklı bir yapıya dönüşmesi sürecinden de en doğrudan etkilenmişlerdir. Bu yeni ortamda becerileri de

daha karlı hale gelmiştir, özellikle de cerrahi eğitiminin parçası olamasalar da önem kazanan farklı becerilerle birleştiklerinde. Pazarlama, sosyal medya kullanımı, girişimcilik, rekabet veya işletmecilik bu yeni ortamda üstünlük kazandıracak beceriler arasından yer alır.

Doktorluk mesleğinin başka branşlarına dair çalışmalar ışığında bakıldığında, cerrahlar sağlık sektöründeki piyasalaşma ya da post-Fordizm eğilimlerinden farklı şekilde etkilenmiş görünmektedirler. Mesleklerinin hem zanaat hem de teknoloji yoğun niteliği onlara devlet ve piyasa ile müzakere ve pazarlık yapma gücü kazandırmaktadır. Böylelikle, cerrahlık zanaatının bu iki niteliği hem cerrahlar arasında hem de cerrahlarla diğer doktorlar arasında farklılaşmaya yol açmaktadır.

Öte yandan, Türkiye'deki tıp mesleği içindeki bu farklılaşmalar hükümetin sağlık sisteminde dönüşüm politikasına ve genel anlamda sağlığın piyasalaşmasına yönelik tutumlarda da farklılıklara yol açmıştır. Doktorluk mesleğinin bütünü içindeki bölünmeler ise devlet ve piyasa aktörlerine dönüşüm politikasını görece daha az muhalefetle karşılaşarak yürütmek için stratejik bir avantaj sağlamıştır. Dönüşüm politikasına, özellikle de kamu hastanelerinde tam gün çalışma zorunluluğu getirilmesine muhalif olan cerrahların aynı zamanda bu politikanın genelinden kazançlı çıktıkları da söylenebilir. Nitekim piyasalaşmış sağlık hizmetleri içinde cerrahi işlemlerin önemli bir pay tutması özel sağlık sektöründe hem cerrahi teknolojilere yatırımları hem de cerrahlara olan talebi arttırmıştır. Bu husus saha çalışmasında da gözlemlenmiştir: Zira özel hastanelerde çalışan cerrahlar genellikle hem otonomi hem de teknoloji boyutlarında doyum veya memnuniyet ifade etmiş, bu sayede zanaatlarını daha iyi icra edebildiklerini söylemişlerdir. Bu gözlem kamu sektörünü ya da üniversite hastanelerini bırakmış olmaktan ötürü bir kayıp ve özlem duygusu ifade ettikleri durumlar için de geçerlidir. Bu arada kalmışlık ya da hem dönüşümden bireysel olarak faydalanıp hem de değerler temelinde huzursuzluk hissetme hali çoğu örnekte 6. bölümde tanımlanan geçiş kuşağına aidiyetle örtüşmektedir.

Kamu hastanelerinde performansa dayalı ücret uygulaması cerrahların –ve diğer sağlık çalışanlarının- çalışma düzeni üzerinde daha fazla idari denetim getirmenin yanı sıra, gelirlerini arttırmak için performans puanı kazanabilmek için daha fazla

teknoloji kullanımına yönelmeleri yönünde de teşvik etmiştir. Dolayısıyla, ödül ve ceza mekanizması ile cerrahları disiplin altına almak ve etkinliklerini arttırmak amacındaki bu yeni rejim çelişkili bir şekilde cerrahlar tarafından uygulanan ve talep edilen teşhis ve ameliyat prosedürlerinin de artmasına neden olmuş, sonuçta da toplam sağlık harcamalarının kabarmasına yol açmıştır. Bir diğer etkisi ise tedaviler ve hastalar konusunda seçici tavırları teşvik etmesi olmuştur, zira performansa dayalı ücret sistemi cerrahlar arasında daha kolay ve fazla performans puanı sağlayan uygulamalara eğilimi arttırırken görece az puan getiren, zahmetli ve riskli ameliyatlardan kaçınılmasına neden olmuştur. Cerrahide yoğun teknoloji kullanımı böylesi amaçlar için kullanılabilecek fırsatlar sunmaktadır.

Çalışmada önerilen kavramsal çerçevenin işlevselliği açısından, çerçevenin cerrahlık zanaatının Türkiye'deki güncel koşullar bağlamında konumunu kapsamlı bir çözümlemeye tabi tutmak için gayet elverişli bir analitik araç olduğunu kanıtladığı sonucuna varabiliriz. Çalışmanın değişik bölümlerinde aktarılan gözlemler cerrahinin karşı karşıya olduğu geniş ölçekli değişimlere rağmen zanaat niteliğini koruduğunu ve teknolojik ve yönetsel değişimlerin vasıfsızlaştırıcı etkilerine direndiğini öne sürmek için yeterli zemin sunmaktadır.

Yukarıda özetlendiği üzere, analiz, 5. bölümden 7. bölüme üç aşamada ilerlemiş ve bir cerrah tipolojisinin geliştirilmesiyle sonuçlanmıştır. Bu tipoloji, analizin tüm aşamalarındaki bulguları bir araya getirmiştir. Tekrar sıralayacak olursak, çalışma ilk olarak Türkiye'deki güncel uygulaması içinde cerrahlık zanaatının tüm bileşenlerindeki değişimleri gözlemlemiştir. Tüm bileşenlerde önemli değişimler gözlemlenmiş, bu açıdan cerrahinin vasıf bileşimi, usta-çırak ilişkisi ve tedavinin tanımlanışı boyutları özellikle öne çıkmıştır. Bu değişimlerin birincil nedeni çözümlemenin ikinci adımında konu edilen teknolojik değişimde bulunabilir. Üçüncü adımda sağlıkta dönüşüm politikasının ve piyasalaşma sürecinin etkilerinin çözümlemeye dahil edilmesiyle zanaatın bileşenlerindeki değişimlerin kapsamlı bir açıklamasına ulaşılmıştır.

Cerrahlar ile teknoloji arasında bir mutlu izdivaç olarak görülebilecek olan durum bu çözümlemenin ışığında cerrah, teknoloji ve piyasa arasında karşılıklı fayda içeren üçlü bir ilişki olarak değerlendirilebilir. Zanaatlarını zayıflatmanın ötesinde yeni

teknolojiler cerrahlara daha fazla vasıf sağlamakta, bu ise onlara nadir ve mali açıdan değerli uzmanlıklarını piyasaya sunmada avantaj kazandırmaktadır. Sağlık hizmetlerinin piyasalaşmasına paralel olarak ülke genelinde yapılan cerrahi işlemler sayısındaki patlamanın örneklediği şekliyle tıp teknolojilerinin kullanımının bir sermaye birikim aracı olarak işlediği düşünüldüğünde, cerrahların sundukları uzmanlık gerçekten de değerlidir. Bu durumda bu ilişkiye dahil olan cerrahların teknolojiye erişimleri bakımından özel sektörde sahip oldukları otonomiden memnun olmaları şaşırtıcı değildir. Ancak bu tüm cerrahlar için söz konusu olmayabilir, zira cerrahlar sahip oldukları vasıflar ya da sağlığın metalaşmasına yönelik tutumlar açısından farklılaşabilir. Üstelik söz konusu olan vasıflar sadece çıraklık sürecinde elde edilen cerrahi becerilerden ibaret değildir; pazarlama, girişimcilik, yönetim ya da iletişimle ilişkili (yeni) cerrahi becerileri de içerir. Bu koşullarda piyasalaşmaya direnç gösterebilir ya da kendileri için daha fazla seçenek yaratacak şekilde ilişki kurabilirler. Bu çalışmada gözlenen tavır ve uygulamaların çeşitliliği bu türden seçeneklerin mevcudiyetine işaret etmektedir. Bu bulgu ise benzer değişim süreçleri karşısında doktorluk mesleği içinde yeni tabakaların oluşumunu gözleyen başka çalışmalarla da uyum içindedir.

Böylesi bir farklılaşmanın olabilirliğini açıklayan faktör ise cerrahinin zanaat niteliğidir. En başta cerrahların uzmanlıklarını değerli kılan teknolojinin zanaatı yok edememiş olmasıdır, yani bu uzmanlık bilgi ve becerisi makinalara ya da yönetime aktarılamamıştır. Bu ise hemşireler, radyologlar, anestezistler ya da aile hekimleri gibi bazı sağlık profesyonelleri için geçerli olabilecek vasıfsızlaşma olgusunun cerrahlar örneğinde söz konusu olmadığı sonucuna götürmektedir.

Cerrahların teknolojiyle ilişkisini incelerken zanaat çerçevesini kullanmanın yararlılığı bir başka şekilde de ifade edilebilir. Bu ilişki devlet, piyasa ve hasta kategorilerinin rolü hesaba katılmadan incelenemez. Bu bağlamın yokluğunda teknolojinin yoğunlaşması cerrahın performansındaki iyileşme ile ilişkilendirilir. Böylece cerrahlar teknolojinin kendilerini daha iyi cerrah yaptığı kanısına varırlar. Oysa bu çalışmaya toplumsal bağlamın dahil edilmesiyle birlikte görülür ki teknolojinin gelişimini yönlendiren sadece bilimsel buluş ve gelişme kaygıları değil, kar ya da hasta talebi gibi başka etkenler de söz konusudur. Bu açıdan bakıldığında,

aslında sağlık piyasasının taleplerini karşılama çabasında olanların cerrahlar olduğu görülür. Dolayısıyla teknolojik gelişme yalnızca cerrahın araçlarının mükemmelleşmesiyle ilişkili değildir. Ancak cerrahın cerrahideki rolünü güçlendirdiği sürece daha fazla teknoloji kullanımı yönündeki piyasa baskısından cerrahların faydalandığı söylenebilir.

Çalışmanın ortaya koyduğu bir diğer önemli sonuç ise meslek dışındaki insanların ya da mevcut veya potansiyel hastaların bakış açısına ilişkindir. Bu noktaya kadar hastalar aktif, talepkar ve bilgili olarak anıldılar. Ancak süregiden değişimlerin hastaların erişebileceği ameliyat prosedürleri ve teknolojileri açısından sonuçları söz konusudur. Üstelik yeni teknolojiler kullanılabilir olduğunda bile cerrahın beceri düzeyi ameliyatların kalitesi açısından kritik önemini koruyacaktır. Hâlihazırda Türkiye'deki eğilimler geçiş kuşağındaki en vasıflı cerrahları özel kurumlara yöneltmekte, toplumun bütün kesimleri açısından erişilebilirlikleri kısıtlanmaktadır.

Cerrahinin değişen teknolojik içeriği cerrahlık eğitimin gereklerini de değiştirmektedir. Müstakbel cerrahların açık cerrahi becerilerini kazanma olanakları azalmaktadır. Kapalı cerrahi becerileri ise simülasyon ve benzeri yeni ve karmaşık, aynı zamanda da pahalı eğitim sistemlerini gerektirmektedir. Bazı durumlarda, üniversite hastanelerindeki asistan cerrahlar bu türden eğitimlere kendi kurumları dışında ve kendi ceplerinden ödeyerek katılmak zorunluluğu hissetmektedir. Bu türden gelişmelerin geleceğin cerrahlarında, cerrahi becerilerin yetersiz veya dengesiz edinilmesi sonucunu doğurması mümkündür. Bu ise gelecekte hastaların cerrahi tedavilere erişiminde eşitsizlikleri arttırabilecektir.

Sağlık alanının ötesine geçtiğimizde, bu çalışma zanaat kavramının çalışma sosyolojisi açısından faydalı olabileceğini göstermiştir. Bu çalışmada önerilen zanaat kavramına dayalı çok boyutlu kavramsal çerçeve farklı çalışma ortamları için de kullanılabilir. Özellikle daha çok otonomi ve örgüt boyutlarına odaklanan profesyonellik kavramıyla kıyaslandığında burada önerilen çerçeve daha derinlikli bir analiz imkanı sunmaktadır. Cerrahi teknoloji yoğun profesyonel meslekler için iyi bir örnek teşkil ederken, kullanılan kavramsal çerçevenin odaklanma imkanı verdiği icra edilen işin teknik boyutları, gerekli becerilerin çıraklığa dayalı eğitim ile aktarılması ya da içsel estetik ve işin bireylere kazandırdığı belirli kişilik özellikleri

gibi boyutlar başka analitik çerçeveler kullanıldığında ihmal edilebilmektedir. Bu noktadan hareketle söz konusu kavramsal çerçevenin farklı iş çeşitlerine uygulanması anlamlı bir araştırma gündemi teşkil edebilecektir. Böylesi bir araştırma gündemine rehberlik edecek ana fikir özellikle yoğun teknoloji kullanımının söz konusu olduğu farklı mesleklerde zanaat tipi çalışmanın niteliklerinin araştırılması olacaktır.

APPENDIX E

CURRICULUM VITAE

PERSONAL INFORMATION
Surname, Name: Başkavak, Cihan Gülşah
Nationality: Turkish (T.C.)
Email: cgulsah@gmail.com

EDUCATION

9/2008 – 9/2009	Humboldt-Universität zu Berlin, Faculty of Social Sciences. Berlin, Germany (Erasmus Exchange Graduate Program)
12/2007	Comprehensive Examination in Sociology Middle East Technical University. Ankara, Turkey. Major: (i) Sociological Theory (ii) Research Methods Minor: (i) Work and Employment (ii) Class Theories and Social Stratification
06/2007	Swedish Institute Summer University Goteborg University. Goteborg, Sweden.
2005	Compulsory Scientific Preparation in Sociology Middle East Technical University. Ankara, Turkey.
2002	M.A., Management and Organization Marmara University. Istanbul, Turkey. Thesis title: "The Effects of Information Technologies on the Distribution of Power in Organizations". Supervisor: Prof. Göksel Ataman
1997	B.A., Labor Economics and Industrial Relations, Faculty of Economics. Istanbul University. Istanbul, Turkey.

RESEARCH INTERESTS

Sociology of Work and Employment
Technology
Craft and Craftsmanship
Occupations and Professions
The Medical Profession
Sociology of Health
Health Politics
Qualitative Research Methods
Organization Studies

WORK EXPERIENCE

6/2010 – 10/2011	*Project Assistant*, TUBITAK [The Scientific and Technological Research Council of Turkey], İstanbul. Project Title: "The Social Structure and Religion in Turkey" (TUBITAK- SOBAG 108K202). Project Coordinator: Prof. Dr. Bahattin Akşit.
1/2009 – 1/2010	*Project Assistant*, BAP [Scientific Research Support]. Middle East Technical University, Ankara.

	Project Title: "Privatization and Commodification in the Health Sector and their Effects on Professionalism: A Study on Medical Profession in Istanbul", (BAP-07-03-2009-00-03). Project Coordinator: Prof. Dr. Sibel Kalaycıoğlu.
3/2006 – 3/2008	*Project Assistant*, Department of Sociology, Middle East Technical University, Ankara. Project Title: "Development of Urban Crime Prediction Models and Crime Reduction Policies Based on Spatial Analyses" (BAP-07-02-DPT 2003(06)K120920-21) Project Coordinator: Prof. Dr. Şebnem Düzgün.
3/2007	*Researcher,* Department of Sociology, Middle East Technical University, Ankara. Project Title: "The Socio-Economic and Cultural Study of a Border Town: Hopa, Artvin". (BAP-2007-01-02-02) Project Coordinator: Prof. Dr. Sibel Kalaycıoğlu.
3/2005 – 4/2005	*Researcher,* World Bank Project, Istanbul. Project Title: "Assessment of Local Initiatives Subprojects", as part of the Social Risk Mitigation Project. (Conducted by the General Directorate for Social Assistance and Solidarity, and supported by the World Bank)
7/2002 – 9/2002	*Project Coordinator,* Friedrich Ebert Stiftung (FES), Istanbul. Responsible for preparation and conducting of an attitude survey on students of Istanbuler Gymnasium [Istanbul Erkek Lisesi] and Athens German School, impact assessment and preparation of the final report.
12/1998 – 12/2004	*Research Assistant*, Department of Business Administration, Yıldız Technical University, Istanbul. Courses Assisted: (i) Undergraduate: Introduction to Business; International Management; Management and Organization. (ii) Graduate: Business Organization; International Management; Modern Business Management; International Human Resource Management.
10/1997 – 12/1998	*Employee*, Human Resource Management Department, Solutions Unlimited Consulting, Istanbul.
7/1997 – 10/1997	*Intern*, Management Sciences Center Inc., Istanbul.
6/1991 – 8/1991	*Intern,* Link Bilgisayar.

FOREIGN LANGUAGES
Turkish (native), English (advanced), German (Intermediate)

PUBLICATIONS AND CONFERENCE PRESENTATIONS
I. International and National Conferences

1. "Surgeons and Marketization of Health: The Case of Turkey". *13th European Sociological Association (ESA) Mid-Term Conference of the Research Network on Sociology of Health & Illness (RN16) on New directions in health care work and organizations*. May 19–21, 2016. Lisbon, Portugal.
2. "A Social Scientist in the Operating Theatre". *13th European Sociological Association (ESA) Mid-Term Conference of the Research Network on Sociology of Health & Illness (RN16) on New directions in health care work and organizations*. May 19–21, 2016. Lisbon, Portugal.
3. "Zanaat Olarak Cerrahlık ve Teknoloji" [Surgery as Craft and Technology]. *14th National Social Sciences Conference [TSBD]*. November 3-5, 2015, Middle East Technical University (METU), Ankara, Turkey.
4. "International Diffusion of Neoliberalism and Resistance: The Transformation of Healthcare System in Turkey". *54th International Studies Association (ISA) Annual Convention on The Politics of International Diffusion: Regional and Global Dimensions*. April 3–6, 2013. San Francisco, California, USA. (with Y. Başkavak)
5. "Yönetim Alanında Çalışan Türk Akademisyenlerin Çalışmalarında Kullandıkları Post-modern Teoriler Üzerine Bir İnceleme" [A Review of the Post-Modern Theories Used by Turkish Scholars in Management

Studies]. Proceedings of the *12th National Management and Organization Congress*. May 27–29, 2004, Bursa, Turkey. (with Y. Gürol and Ö. Aşık)

6. "An Examination of Areas of Interest in Turkish Academic Studies of Human Resource Management on the Dimension of Past, Present and Future". *Workshop on Management Knowledge in Time and Space*. The European Institute for Advanced Studies in Management, Istanbul Bilgi University. September 25–26, 2003, Istanbul, Turkey. (with Y. Gürol and Ö. Aşık)

7. "Strategies of International Firms in Transition Economies". *3rd International Management Conference.* November 29–30, 2001, Angers, France. (with E. Mutlu, Y. Gürol and Ö. Aşık)

II. Book Chapter

1. "Zanaattan Robotiğe: Tıp Teknolojisi ve Türkiye'de Kuşaklararası Cerrah Tipolojisi" [From Craftsmanship to Robotics: Medical Technologies and a Generational Typology of Surgeons in Turkey] in Denizcan Kutlu and Çağrı Kaderoğlu Bulut (Eds.), *Sınıfın Suretleri: Emek Süreçleri ve Karşı Hareketler* [Representations of Class: Labor Processes and Counter Movements], İstanbul: NotaBene, 2017 (forthcoming)

2. "Bilişim Teknolojileri: Getirdikleri ve Götürdükleri" [Information Technologies: Pros and Cons]. In *Çalışma Yaşamında Dönüşümler: Örgütsel Bakış* [*Transformations in Working Life: Organizational Perspective*]. Aşkın Keser (ed.), Ezgi Publishing, Bursa, 2002. pp. 197-210 (Reprinted by Nobel Publishing in 2005) (ISBN: 9789755918013)

III. Invited Speech

"Cerrahlık, Zanaat ve Teknoloji: Sosyolojik Bir Bakış" [Surgery, Craft and Technology: A Sociological View]. Educational Meetings 16. Department of Medical Education and Informatics, Medical School, Hacettepe University. 21 April 2016, Ankara.

IV. Unpublished Research Reports

1. S*ağlık Sektöründe Özelleşme ve Metalaşmanın Uzmanlık Üzerindeki Etkileri: İstanbul'daki Uzman Doktorlar Üzerine Bir Çalışma* [Privatization and Commodification in the Health Sector and their Effects on Professionalism: A Study on Medical Profession in Istanbul]. BAP-07-03-2009-00-03. METU, Ankara, 2013 (with S. Kalaycıoğlu)

2. *Türkiye'de Toplumsal Yapı ve Din* [The Social Structure and Religion in Turkey]. TUBITAK 108K202. 2011, Ankara. (with B. Akşit, R. Şentürk, K. Cengiz, Ö. Küçükural, G. Yavuz, Z. Benli, S. Gülen, P. Güran, N. Taşkın, Z. Arıkan)

3. *Kentsel Suçlar için Mekansal Analiz Yöntemlerine Dayalı Suç Tahmini Modellerinin ve Suç Önleme Politikalarının Geliştirilmesi* [Development of Urban Crime Prediction Models and Crime Reduction Policies Based on Spatial Analyses]. State Planning Department-07-02-DPT.2003(06)K120920-21. Ankara, 2008. (with S. Kalaycıoğlu, K. Mutlu, G. Demir, İ. Boyacıoğlu, E. Polat, M. Kalaycıoğlu)

GRANTS AND SCHOLARSHIPS

1. International Conference Support [Turkish Scientific and Technological Research Council-TUBITAK-2224], San Francisco, California, USA, April 2013.

2. Project Assistantship, TUBITAK (Project No. 108K202), June 2010-October 2011.

3. Project Grant, BAP [Scientific Research Support], Graduate School of Social Sciences, METU, 2009-2010.

4. EU/Erasmus Program, Berlin, Germany, September 2008- September 2009.

5. The Swedish Institute, Summer School in Goteborg, Sweden, June 2007.

TECHNICAL SKILLS

MS Office Applications, ATLAS.ti, SPSS, Zotero, EndNote Reference Software user.

MEMBERSHIP

European Sociological Association (ESA), International Studies Association (ISA)

APPENDIX F

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü ☐

Sosyal Bilimler Enstitüsü ■

Uygulamalı Matematik Enstitüsü ☐

Enformatik Enstitüsü ☐

Deniz Bilimleri Enstitüsü ☐

YAZARIN

Soyadı : Başkavak
Adı : Cihan Gülşah
Bölümü : Sosyoloji

TEZİN ADI (İngilizce): *Understanding Surgical Craft in the Changing Context of Technology, Transformation of Healthcare and Marketization: A Case Study on Surgeons in Istanbul, Turkey*

TEZİN TÜRÜ: Yüksek Lisans ☐ Doktora ■

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
3. Tezimden bir bir (1) yıl süreyle fotokopi alınamaz. ■

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: