

SCHOOLS OF THE FUTURE IN GLOBALIZED SOCIETY: FORECASTING
VIA SCENARIO DEVELOPMENT METHOD IN TURKISH SCHOOLS

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ABSTRACT

SCHOOLS OF THE FUTURE IN GLOBALIZED SOCIETY: FORECASTING VIA SCENARIO DEVELOPMENT METHOD IN TURKISH SCHOOLS

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This study aimed to investigate the predictions of the schools of the future in Turkey. For this aim the study focus on the one major research question: In what ways will schools be evolving for the future in relation to perceptions and major global trends and what are possible future scenarios about schools in Turkey? Qualitative research methods were used to gather data and data were supported by the quantitative results of recent studies. To explore the concept of the schools of the future this study started with the investigation of diverse perspectives on schools of the future. For this phase case study and purposeful sampling methods were used. After that trends shaping education were investigated. Finally all findings put together to create scenarios in related with the schools of the future in Turkey. On the basis of the results of the study four different scenarios were created. These scenarios are not blueprints of the future; these are a possible set of schools of the future in Turkish context.

Key words: Schools of the Future, Trends in Education, Scenario Method

ÖZ

GLOBALLESEN TOPLUMDA GELECEĞİN OKULLARI: SENARYO GELİŞTİRME YÖNTEMİ İLE TÜRK OKULLARININ GELECEĞİNİ ÖNGÖRME

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Bu çalışma Türkiye'deki geleceğin okullarını öngörmeyi amaçlamaktadır. Bu amaç için iki ana araştırma sorusu oluşturulmuştur: Algı ve temel global trendler ile ilişkili olarak gelecekte okullar hangi şekilde gelişecektir ve Türkiye'de ki geleceğin okulları için olası senaryolar nedir? Veri toplama için nitel yöntemler kullanılmış olup bu veriler nicel çalışmaların sonuçları ile desteklenmiştir. Geleceğin okulları konseptinin araştırılması için bu çalışma geleceğin okulları konusunda farklı algıların belirlenmesi ile başlamıştır. Bu faz için örnek olay ve maksatlı örneklem metotları kullanılmıştır. Bundan sonra eğitime yön veren trendler incelenmiştir. Son fazda bütün bulgular Türkiye'de ki geleceğin okulları senaryolarının yaratılması için bir araya getirilmiştir. Sonuç olarak dört senaryo yaratılmıştır. Bu senaryolar geleceğin bir planı değil, Türkiye bağlamında ki geleceğin okullarının bir olasılıklar kümesidir.

Anahtar Sözcükler: Geleceğin Okulları, Eğitim Trendleri, Senaryo Metodu

To my dear supervisor, Prof. Dr. Ercan KIRAZ, who have always appreciated the marginals, the crazy ones, the misfits, the rebels, the troublemakers, the round pegs in the square holes... He is an unprecedented person who sees things differently and acts differently...

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LIST OF ABBREVIATIONS

FATIH	Movement to Increase Opportunities and Technology Project
BYOD	Bring Your Own Device
MAI	Multilateral Agreement on Investment
CERI	The Centre for Educational Research and Innovation
OECD	The Organization for Economic Co-operation and Development
KEI	This Knowledge Economy Index
EdF	Educational Futuristics
ICT	Information and Communication Technologies
GDP	Gross Domestic Product
GATS	General Agreement on Trade and Services
UNESCO	United Nations Educational, Scientific and Cultural Organization

CHAPTER I

INTRODUCTION

This introductory chapter includes statement of the problem and background issues; research questions investigated throughout the study; purpose and significance of the study; and finally, definition of the terms that were addressed in the study.

1.1. Statement of the Problem

*“My interest is in the future because I am
going to spend rest of my life there”*

Charles Franklin Kettering (1876-1958)

Today's people are living in an increasingly globalized and complex society. In last century a dramatic technological revolution has happened and the process is still going on. Change in everywhere in the globe is happening rapidly and people have no idea of what the world will look like in ten years, much less than 60 years. Emerging technologies and resulting globalization also provide unlimited possibilities for exciting new discoveries and developments. Although we have no idea about future this is our duty, as educators, to prepare our students to that unknown future dealing with unlimited possibilities (Shaw, 2011).

In the light of abovementioned the topic of this study is the schools of the future. The source of this topic is primarily based on personal interest and the experience of the researcher. This interest led her to investigate ‘why we had created the schools we have today’ and ‘what kind of schools will emerge in the future’. In the topic, researcher intentionally used schools of the future rather than

education of future because education is a huge concept including many facets. This present study focuses on perceptions, trends, organization, structure and political context dimensions (attitudes, expectations, political support and geopolitical dimension) of possible schools of the future.

Future is determined by the choices that are made in today. When the educational policy making process is in Turkey investigated, researcher has come up with a significant deficiency in futures thinking procedures in decision making. For this reason this study need to be conducted to provide evidence for long-term, or sustainable in other words, policy making for the future in the field of education.

The debate over the type and direction of change in education is still in progress there is a need to draw a future direction for the schools. For instance, recent studies of The Centre for Educational Research and Innovation (CERI) began its work on futures in the late 1990s recent. Its focus has mainly been on schools and schooling issues and the origins of work on schooling futures began at an OECD meeting on lifelong learning of countries' Ministers of Education in 1996. The ministers pinpointed the crucial role of schools in laying the foundations for lifelong learning and asked the OECD to identify and assess different visions for schooling. The project was officially launched at an international conference in Hiroshima in November 1997. At the core of this work is the persistent paradox that although education is about long-term investment in people and society, its decision-making tends to be predominantly short-term. Longer-term perspectives in policy and practice are the exception rather than the rule. *Schooling for Tomorrow* set out to develop frameworks and tools to be useful for people in many different situations in many countries for thinking about alternative futures for education (OECD, 2006).

In the light of aforementioned points, this study has speculative aims rather than using this in problem-solving activity. It is speculative because the main objective is to sharpen understanding of the policy and its implications for the future implementations. Hence, this study has been designed on three phases.

All phases are constructed for the purpose of investigating two major research questions: In what ways will schools be evolving for the future in relation to perceptions and major global trends and what are possible future scenarios about schools in Turkey?

In the first phase researcher had a profound literature review to get the idea of schools of the future concept. Pre-Study interviews also served to capture perspectives of teachers and school leaders that gave a broad insight for the further research. Results of these interviews indicated that there is a tendency to “learner centered” paradigm in education. Whether the last reforms in Turkish education claims that schools are considering learner-centered methods there is a wide gap between our implications and well-known implications of this approach. For this reason there is a two-month long fieldtrip was organized to gather data both for gathering data to schools of the future perspective in a different angle and widen the intellectual horizon on what learner centered education is.

Phase 2 began with a broad review of the major trends that set the environment in which schools will be shaped into the future. The trends reviewed are drawn from a number of the fields – economic, social, political and cultural – that are pertinent to the world of schools and schooling. This is not meant that these wider trends define agendas to which the educational world must simply react. Yet impact they undoubtedly do on the world of education, shaping its nature, outcomes, and the agenda of aims for tomorrow. The features and trends presented are necessarily selective from the manifest complexity of the world of today and tomorrow. The complexity is compounded as not all trends point in the same direction, and sometimes conflict in terms of their impact on, and the agenda they set for, schooling. For this aim desk research was conducted and be complemented with some interviews with key personnel to ensure that a correct understanding of the subject matter has been formed. In the last step of this phase a scenario framework was developed in the light of desk research and trend interviews.

Finally in the last phase, the scenarios was developed with the “two by two

matrix” that allowed to create the scenarios relatively quickly. To generate debate and gather information about what scenarios produced, scenario interviews were conducted. During these interviews experts elaborated on how the different drivers influence and how these drivers may themselves be influenced were taken into consideration to comprehend the basis of the different scenarios. Figure 1 depicts the related research questions and the way that followed in each phase.

1.2 Background to the Study

Policy implementations in education have no direction and decision-making is based on Ad-Hoc policies. There is an urgent need for sustainable policy making in the field of education. Furthermore consistency among these implications will determine the destiny of Turkish education system whether it will catch up or lead the way in global context.

Shultz and Hanushek (2012) argued that a nation’s economic future depends on the human capital that its preschool through 12th grade (K-12) schools produce. Data indicate that countries whose students demonstrate higher math and science skills have grown more rapidly than those with lower-skilled populations. Since the quality of a nation’s education impacts its long-term economic growth and income distribution (Shultz & Hanushek, 2012). In the light of above mentioned it may submit that a country’s improved education system can lead to an improved future. In contrast, without high quality K – 12 schools, a country’s economic growth will stall and its economic inequality will increase (Owings, Kaplan & Pirim, 2012).

Despite the high human capital potential, Turkey is experiencing serious difficulties in education sector. These factors include: (1) low graduation rates and a large unskilled workforce with high youth unemployment, (2) high dropout rates that influenced by school-industry knowledge and skills mismatch, (3) cultural

influences and social background inequities that impact children's educational quality and outcomes, (4) high student/teacher ratios in primary classrooms which reduce the opportunities for many children to develop foundational reading and mathematics literacy, and (5) the high-stakes gatekeeper exams to qualify for high quality secondary and university educations (Owings et al, 2012). To handle problematic areas in Turkish education there is a need for focus on some fundamental questions first and go further step by step instead of short-term decision-making (Ad-Hoc policies in other words).

Schmidt (1999) has analyzed how education changes as we move from a traditional society to a modern society. Originally the purpose of education was to convey knowledge from one person to another. The learners taught previously by somebody else transmitted their knowledge to the ignorant who, with really close attention, may hope to become almost as knowledgeable in time. Physical motivation was thought a suitable means of inducing the ignorant to pay attention, which might be described as "gas tank education" as it sees the students as empty vessels to be filled up. In time it became the purpose of the educational system to impart "qualifications," so that it became the market, especially for labor, which determines whether a qualification is worth anything, not teachers. Today this process has reached a point where among the most important qualities are "competencies" – unique, personal characteristics such as creativity, a sense of humor, and the like. Obviously an educational process that is supposed to foster the unique competencies of each individual student cannot use the same motivational means as one based on rote learning (Paludan, 2006).

Perhaps it is time to rethink models about school and about teaching and learning. What should future learning environments look like? How should we organize time to learn? What types of relationships and communities will nurture our students? What tools do they need? What if the schools based on industrial and agrarian models that have existed for centuries not be the schools that we need for tomorrow. What might we imagine as a different model? (Witt & Orvis, 2010)

In addition to above mentioned taking precautions to survive in the global, post-industrial, knowledge age economy is necessary. Today's society is an experience oriented society with ubiquitous, connected, digital technologies. Societies are competing on a global stage not only developed countries but also with countries like India and China rapidly redefining their economies, becoming IT and professional service providers, and manufacturers, of choice. Learners face a rapidly changing world and we must help them to succeed if they are to have choices and a voice. Success on the world stage is not guaranteed, particularly in a knowledge-based economy that has few boundaries (Ellis, 2005).

In this study it is put in to account that education and learning must consider how young people live their lives and the skills that they need for their future. It reflects recent research on learning which reminds us that learners have varying needs, that their needs have changed since the industrial age, and that they continue to change. Young people's digital lifestyles challenge the relevance of current education delivery. The knowledge age model starts with 'learner achievement', and builds a system that helps each learner to achieve their potential. The 'education system for the knowledge age' is ultimately very different from the 'educational system for the industrial age' which has already been through many of the changes from an 'industrial' to an 'experience' world, suggests that many aspects will remain, at least superficially, familiar. Taking this opportunity is imperative if we are to maintain competitiveness on the world stage (Ellis, 2005).

There are many who believe that the schools of today are different that the schools of the early 20th century. They point to computers, networking, SMART boards in classrooms, and multitude of other improvements as proof that schools have changed. Although there have been changes, most of them are superficial. The underlying assumption and organization of the school into classrooms, hallways, and departments that was instituted so long ago remain unchanged (Kelly, et al. 2009). In the light of aforementioned we can say that schools were the same for more than a century. In other words, the world outside the school has

shifted to the information age, but most schools are still operating on the ideas of the industrial age. On the other hand, today the world has been experiencing a turning point which may be named as transition from modern to postmodern, from industrial to post industrial, from rural to urban, and from local to universal values. Related with this paradigm shift schools of the 20th century have been criticized deeply.

Politicians, on the other hand, are discussing about “Putting learners first” in the education ‘system’. It is easy to talk about putting learners first: it is quite another thing to actually live and breathe this paradigm, especially when the industrial age view is long embedded in the very fabric of our lives. Adopting a learner centred view means thinking differently, behaving differently, and acting differently. It appears easier to stay with the familiar industrial age model but this misses much of the opportunity represented by future studies (Ellis, 2005). ‘Putting learners first’ means catering for a much higher degree of diversity, and has wide implications for the education system. Phrases like ‘learner achievement’ replace ‘learner productivity’, a feature of the industrial age model. The industrial age model is recognizable in phrases that imply uniformity, such as ‘we must have a shared vision’. This very phraseology must change. ‘Our vision must work for everyone, whatever their starting point’. A paradigm shift makes all people as learners. This change affects all of us, and will render many existing skills absolute. Many of people will need to learn different ways of thinking, and think about different ways of learning. People will explore important concepts like self-direction and personalization in relation to learning opportunities in an increasingly connected and digital world and thoughts about appropriate learning spaces.

In the world, for last two decades, there are some remarkable studies going on to put new paradigm in to action. For instance, work under the “Schooling for Tomorrow” project initiated by the OECD/CERI at the end of the 1990s (OECD, 2011). A conference held in Rotterdam, in the Netherlands between November 1-3, 2001 brought educators, non-governmental organizations, and policymakers

together and current situation regarding educational practices presented and they worked on the scenarios for possible future changes (OECD, 2011). The OECD scenarios for future schools have been developed under three broad headings – the “status quo extrapolated”, “re-schooling” and “de-schooling” are not specific for any country. They are only predictions of education of near future in education.

When you consider the industrial age system for education of today it is not possible to solve problems with short-term efforts. This study seeks to address the problem of lack of long-term policy making for the future in the field of education. To this attempt educators and policy makers should to know about futures thinking and current trends of society.

Futurism would be a challenging term because something that does not exist is formidable to inquire. Most of futures studies focus on exposing how the future cannot be predicted because it is contingent on choices we make starting now. Moreover, it is an arduous process to predict about one future because there is a set of possible futures that all will be influenced by different drives (Miller, 2006). That is the reason why studies about future are in pluralistic structures. Thinking about future has always been an adventurous way to follow because society tends to look behind rather than forward to the future. Since the future cannot be reliably predicted, one can foresee a range of possible futures. When possible futures are mentioned it is not about gazing into a crystal ball. There is a set of techniques used for forecasting the future. Such as Technology Foresight Method, Scanning Method, Extrapolation Method, Scenario Method, Delphi Survey Method. Scenario analysis is one the most popular and widely used method in futures studies (Loveridge, 2009). On the other hand searching about trends must be the seminal part of decision making because schools of the future will exist in the society of future. To predict the structure of this society, trends shed light on our way.

With this sense it can be said that results of this study will be useful for practitioners in the field and policy makers. One of the main obstructions in the field of education is practitioners’ disposition to change. There are many reasons

mentioned for the rejection of change in practitioner's side but the aim of this research is to provide an evidence to think about different possibilities in education. In addition to that it is a self-conscious effort to raise consciousness among educators about needs of the school systems again and find ways to make schools ready for the future. On the other hand this research can obtain scientific proofs that can be used as a base for evidence in policy making.

1.3 Purpose of the Study

The purpose of this qualitative study is to explore possible schools of the future in turkey. At this stage in the research, schools of the future is defined as any possible educational institutions that emerge in the future based on current trends. These institutions may exist in traditional school form or less structured forms. With these intentions, the following research question is formulated:

1. In what ways will schools be evolving in the future?
 - 1.1. What are the perceptions of practitioners' in the field of education on schools of the future?
 - 1.2. What are the major trends that shaping the future K-8 schools in Turkey?
2. What are the possible scenarios for the future K-8 schools in Turkey under consideration of globalization and technology?

This present study is divided into 3 Phases to investigate abovementioned research questions. Phase 1 is designed to explore evolve of the schools in the future in terms of perceptions and under first sub question practitioners ideas will search in multifaceted way. Phase 2 is designed to seek answer to –sub question 2- major trends that shaping the future K-8 schools in Turkey. Finally Phase 3 conducted to explore possible scenarios for the future K-8 schools in Turkey under consideration of globalization and technology. Structure and processes of each phase will be explained at all points in methods section.

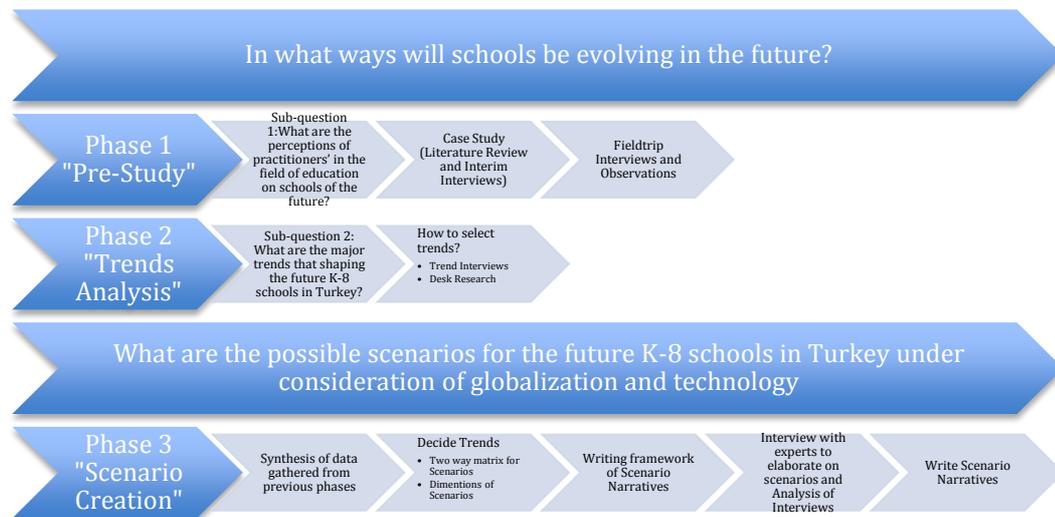


Figure 1: Overview of the Study

1.4 Significance of the Study

Globalization leads to many challenges and problems, but it also makes it much easier to learn from those in other countries about areas of common interest. It helps those concerned about education in different countries to understand new developments and identify good practice. Such international sharing is at the heart of the *Schooling for Tomorrow* Project (SfT) (OECD, 2006). It has developed a wealth of insights into *futures thinking* in education. It has generated expert analyses, case studies, country reports and publications related to schooling and learning and what these might be like in the future and to help shape the future (OECD, 2006). The *Schooling for Tomorrow* scenarios are above all *tools*: tools for reflection, tools for collaboration, tools for innovation and transformation. Because, scenario development enables policy-makers and school leaders to think ahead, beyond the straitjackets of everyday tasks, about the forefront of their fields (OECD, 2006).

With the same sense, this study cannot put the “right answer” or ideal solutions on the table, but scenarios are powerful analytic tools for policymaking, a disciplined approach to the speculation and intuition that inevitably influence long-term policy decisions. Futures thinking illuminates the ways that policy, strategies and actions can promote desirable futures and help prevent those considered undesirable. To this attempt this study would provide an idea of schools of the future and possible practices in the schools. The fundamental significance of this study is to provide alternative pathways for schools in the global, post-industrial and knowledge age economy.

It also improves the chances of making good decisions about critical elements and their implications for future opportunities and options. Finally, in literature the predictions of schools of the future are too general and not related with Turkish Education System. Therefore, results of this study is important to establish a link between global predictions of future schools and the futures of Turkish schools. Moreover it can help policy-makers and school leaders in many ways as suggested by OECD (2006) to all of its counterparts, Saussois (2006), and Ogilvy (2006) as:

1) Explore options and advance strategic choices: Scenario development can help people to anticipate threats, grasp opportunities, see choices, spot the unexpected and evaluate potential actions. By sharpening the awareness of long-term alternatives, scenarios help people to make better decisions today (OECD, 2006). Scenarios can use as tools to provoke strategic conversation about the future of education. Because scenarios are just stories, and not yet plans cast in concrete, they can be entertained and discussed in a realm well short of dedicated commitment. Because scenarios are divergent and as, they do not, at first, force convergence on consensus, they allow widely different views go gain a respectful hearing. For this reason, they are good tools for engaging an entire community, or an entire nation (Ogilvy, 2006).

2) Challenge existing thoughts: Just as we tend to educate the way we were

educated so it is not easy to imagine genuinely new ways to do something so utterly familiar to all of us. Scenarios may help the participants' -and readers- to challenge and re-conceptualize their understanding of the administrative environment and the dynamics and trends that shape it. The major outcome of using scenarios may indeed be in challenging existing understandings.

3) *Empirical support for policy implications:* Scenarios in a policy context is to support decisions on complex issues with long-term implications.

4) *Gave chance to make international comparisons:* There are also methodological difficulties with establishing fruitful international comparisons of the scenarios. Even if comparisons are widely developed by international organizations (such as through the PISA surveys of student achievement), they actually make demanding theoretical and methodological assumptions giving rise to challenging questions. What is the specific objective, explicit and implicit, of the international comparison? How to deal with the societal dimension (Saussois, 2006)? Here in this study same path and dimensions are used with Schooling for Tomorrow study but considering Turkish context.

1.5 Definition of Terms

Schools of the Future: possible educational institutions that will emerge in the future based on current trends.

Educational Futurism: Educational Futurism addresses planned and unplanned changes in the field of education. It encourages innovative use of human and machine-based developments in teaching and learning (Shostak, 2010).

Futures Thinking: Futures thinking is associated with futures studies and futures studies and described as an interdisciplinary “collection of methods, theories, and findings” (Miller, 2003, p.7) that helps people to ‘think constructively about the future’ (Bell, 1996 cited in Codd et al 2002, p.5).

Educational Trends: Educational Trends are major developments that affect the future of education and setting challenges for schools. Looking at trends informs us about what is changing in education’s environment (OECD, 2006).

Ad-Hoc Policy: *Ad hoc* is a word that originally comes from Latin and means “for this” or "for this situation." It is used to describe something that has been formed or used for a special and immediate purpose, without previous planning. In policy it generally indicates a policy implementation designed for a specific problem or issue.

CHAPTER II

REVIEW OF THE LITERATURE

“The future depends on what we do in the present”

Mahatma Gandhi

A review of the literature was undertaken for the purpose of gathering, presenting and summarizing the relevant information. In this study literature review was organized around three main themes about the schools of the future concept. The main theme was as follows: Futures thinking, schooling of the future and major trends that shape education.

2.1 21st Century Transitions in Education

21st century transitions in education could be explained under many sub-dimensions but in this section is only focused on nature of human learning and system of schooling. The reason of this focus is to abstain from overlap with trends shaping education, as following section will explain.

Answers to fundamental questions such as, *what to learn* or *how to learn* can be found throughout history, and these answers point repeatedly to key concepts that are the cornerstones of the new science of teaching and learning. Moreover learning theories are so central to the discipline of psychology that it is impossible to separate the history of learning theories from the history of psychology (Tokuhama-Espinosa, 2010).

Interest on how humans learn has existed as old as human history. Plato taught that the effectiveness of the human brain was all to do with inheritance –

those born to be leaders had gold in their blood, those to be administrators, with silver, while the common man (the vast majority) had only iron. To Plato destiny was fixed at the moment of conception. Later on, starting in the 10th century, humanity gained a fundamental understanding about how sensorimotor perceptions are interpreted in the brain and translated into thought (Tokuhamas-Espinosa, 2010).

During the Enlightenment period in the history of western thought and culture, characterized by dramatic revolutions in science and philosophy, Descartes' proclamation "Cogito, ergo sum" (I think, therefore I am) triggered a new reflection about the role of the individual. This understanding of a worldview has influenced Western concepts of education forever. Thinking, not just being, constituted the definition of one's purpose in the world. This idea implied that maximizing one's individual potential to think, create, and produce intellectually justified one's existence (Tokuhamas-Espinosa, 2010). In addition to that John Locke, get noticed to experiences of people that all ideas driven from. According to him, at birth, the mind is like a blank sheet of paper, a *tabula rasa*, on which ideas are imprinted (Ozmon & Craver, 2007).

Tokuhamas-Espinosa (2010) stated that the 18th and 19th centuries were riddled with false convictions about the brain. The belief in phrenology is the most remarkable example, in which the bumps and crevices of the skull were measured to determine strengths and weaknesses of both academic prowess and personality traits. When it was found that external traits of the brain did not reflect intellect, neuroscientists change the direction of their work to inner workings of the brain. The turn of the 19th century new scientific theories of learning emerged, including the now famous "nature versus nurture" debate. On the other hand Piaget's well known work shed light on mental development of children. As his contemporary Behaviorists assumed the brain as simply an input-output system. The Behaviorists claimed that nothing which could not be observable and measurable ever existed. The management of external motivation, and the con-

struction of a closed environment, was the essence of behaviorism. (Ozmon & Craver, 2007).

Furthermore findings of some of the studies that were sparked by Luria's inspirational work included the acknowledgment that problems with memory can occur during stages of encoding (getting this information into the brain), storage (maintaining links to the encoded information), or retrieval (being able to access and use memories stored in the brain). Other studies noted that different memory systems (e.g., short-term vs. long-term) have different, though often overlapping, neural pathways (Tokuhama-Espinosa, 2010). In addition to that Jerome Bruner lent his skills and insight to the foreword of Luria's work in a reprint in 1987 and helped reinforce the importance of the consideration of memory in all aspects of life and learning (Luria & Bruner, 1987).

As Greenough (1987) mentioned there is no doubt that enriched environments change the brain and that new learning occurs. According to this argument the main discussion revolves around the definition of the enrichment: whether may be enrichment to one person may not be enrichment to another (Tokuhama-Espinosa, 2010).

In more recent studies the new understanding of intelligence proposed by Gardner (2001) and his work started a discussion on the connectivist model in psychology. These models began to offer a more sophisticated view of the brain as a complex integration of various systems (thus the connectivist idea), rather than just the simple localization theories of the past (which believed that X function was located in Y spot of all brains) (Tokuhama-Espinosa, 2010). The 1980s also noted a shift from behavioral studies in educational psychology to those of cognitivism and constructivist theories. The general idea of cognitivism is that mental functions can and should be explained by evidence of brain activities that can be measured through experimentation. On the other hand, the constructivist model of learning, often attributed to Piaget, suggests that people construct their own knowledge based on their experiences. Viewed together, cognitivism and constructivist models of learning pointed to the increasingly

complex understanding of how human mental capacity grows over the course of one's lifetime, and how this growth can be measured both in relative and absolute terms. Since this early movement away from behaviorism (the belief that all things organisms do can and should be regarded as behaviors) toward cognitivism, psychology took a turn toward the hard, rather than soft, social sciences. The interdisciplinary view of learning and its natural counterpart of teaching were firmly established in the 1980s (Tokuhama-Espinosa, 2010).

Last but not least this can be said that the evolution of learning theories may be thought of as a progression from broad theories developed to explain the many ways that learning occurs to more specific theories that are limited in the types of learning they are designed to explain. Learning theories are broadly separated into two perspectives. The first perspective argues that learning can be studied by the observation and manipulation of stimulus-response associations. This is known as the behaviorist perspective because of its strict adherence to the study of observable behaviors. The second type of learning theory argues that intervening variables are appropriate and necessary components for understanding the processes of learning.

These research and theories on learning are extremely important for their connections of today's model of schooling. For instance the basic model has not changed in more than half a century and largely reflects the thinking of the Behaviorists: age-related classes for uniformity, knowledge transmitted by subject-specific disciplines, and the belief in the unchanging nature of human intelligence.

On the other hand some other questions that have been debated over the centuries -What is school? What is school for? How should the school be in the future?- still waiting for further discussion. Perceptions, structuring and implementations about 21st century schools were made in the days of agricultural society. Our schools bear the scars of their birth in the agricultural and industrial eras. Schools get long summer vacations because, when our public school system was first founded, the yearly calendar for the current school system was based on

the agricultural cycle in which students were released for three months each summer so that they could help harvest the crops.

The industrial revolution, on the other hand, left its marks on our schools. During the first half of the 20th century there was a major change in the way children were educated. Educators were deeply influenced by the lessons of scientific management that allowed the industrial revolution to lift so many out of poverty (Ogilvy, 2006). Henry Ford introduced methods of mass manufacturing for the mass market of America's increasing middle class. Where craftsmen in the 19th century hand-crafted carriages one by one for an elite clientele, Henry Ford invented the assembly line to mass-manufacture identical Model-Ts at a price his workers could afford. The cars were cheap because they were produced by the tens of thousands. Mass manufacturing relied on economies of scale. Scientific management and the industrial revolution were great achievements that helped to build the economies of the OECD countries. No wonder educators and governments wanted to model their schools after factory model. The scientific machine-like progress of the 20th century resulted with creating large schools to replace the one-room school with large buildings. Teachers began teaching a single subject to students who were all the same age. Schools were organized into departments, teachers teach in classrooms for short period of time and time order provided with a bell ring (Kelly, McCain & Jukes, 2009). Students were seated in rows as rational and orderly as the factory floor. In the name of equity, they were given identical lessons in lock-step sequences modeled on the assembly line (Senge, 2000).

But that was the industrial era improving on the one room school houses of the agricultural era. Now society aware of schools have not yet updated according to the lessons of the information revolution. Industry now uses the fruits of the information revolution to achieve efficiencies without resorting to economies of scale. Rather than relying on mass markets that want more and more of the same, new methods of manufacturing use computers to customize different products for different customers (Ogilvy, 2006).

2.1.2 Learner Centered Education

Learner-centered approach emphasizes students' needs and interests (affective aspect of learning) as well as cognitive aspect of learning. The learner-centered curriculum is rooted in the philosophy of J.J. Rousseau in that students should be left their own device and the creativity and freedom were two main issues for students' growth. McCombs (1997; as cited in Brown, 2003) explained that the focus in a learner-centered approach is on individual learners' heredity, experiences, perspectives, backgrounds, talents, interests, capacities and needs. One of the major assumptions underlying the learner centered philosophy is that, given the constraints that exist in most learning contexts, it is impossible to teach learners everything they need to know in class (Nunan, 1988). Learner needs and characteristics take precedence over knowledge of facts and skills; the emphasis is on engaging learners in learning for understanding and thinking, to help them build their own interpretations. Although students are active learners, the teacher's expertise is still a powerful part of the learning equation (Brown, 2003).

The purpose of student-centered curriculum is to make learning maximally effective-not for the average student, but for each student. Thus, a curriculum is student-centered to the extent that it provides for individual differences in learning. A course of study, for example, that does not provide for individual differences in learning rates is not maximally effective; it bores fast learners, frustrates low learners, and results in negative learning experiences for both groups. Student-centered reform in the curriculum is a question of finding ways to maximize learning for each student. And that is not as difficult or as expensive as it sounds (Cross, 1975). Moreover, progressive education movement provided impetus to student-centered approach and its proponents claimed that if the students' interest and needs were incorporated into curriculum, intrinsic motivation resulted. Thus, advocated believe that the students' needs and interest should be taken into account in developing curriculum. The key difference between learner centered and traditional curriculum development is that, in the

former, the curriculum is a collaborative effort between teachers and learners, since learners are closely involved in the decision-making process regarding the content of the curriculum and how it is taught (Nunan, 1988).

Cross (1975) identifies four major dimensions important to learning, and content that students differ in relation to each one. They differ in rate of learning, in life situation, in learning style, in goals.

(1) *Rate of learning*: Individual differences in the rate of learning became a very obvious and serious problem for colleges when large-scale, open admissions began in the 1960s in USA. Open-door colleges were faced with staggering diversity (Cross, 1975). Fortunately for higher education, advances in the psychology of learning had already paved the way for practical applications of reinforcement theory in the form of self-instructional modular units. It was now possible for students to control the rate at which new material could be assimilated. This breakthrough led to the much more sophisticated and attractive self-pacing models that exist in all kinds of colleges and universities today. Two-thirds of the community colleges use self-paced learning modules (Cross, 1975).

There is no longer any doubt that self-pacing is both feasible and desirable as far as student learning is concerned. But what is good for students is not always convenient for teachers and administrators. The promise of self-instructional units has forced educators to examine their priorities. Most institutions and instructors have compromised; they permit students to pace themselves as long as they do so within the administratively convenient term or semester. An ideal student-centered curriculum would permit students to complete learning units in accordance with their needs rather than ours. I think that day will arrive when colleges will take the logical, rather than the traditional, approach and will credit learning by units mastered rather than by time served.

(2) *Life situations*: The largest group of citizens systematically excluded from education by the classical model of college was composed of those who are unable to pursue formal education full time. In 1972, the number of part-time

students began to exceed the number of full-time students in institutions of higher education. This means that the majority of students have other responsibilities. Colleges can no longer confidently expect students to be free to arrange their lives and schedules in conformance with institutional procedures. Schedules, services, and even locations have had to become student-centered rather than institution-centered, and the massive move to offer programs and services attractive to part-time adult learners continues (Cross, 1975).

(3) *Learning styles:* Cross (1975) stated that research on teaching effectiveness has been inconclusive and disappointing because we have been asking the wrong questions. When we ask whether discussion is better than lecture, whether TV is as good as live teacher, whether programmed instruction is an improvement over more traditional methods, we find that for the mythical statistical average student it seems to make little differences how we teach. Psychologists are now asking more sophisticated interaction questions about learning styles-which methods work for which students?

While it is not yet known enough about individual learning styles to prescribe strategies that will maximize learning for a given person, it is clear that it is necessary to give more attention to offering pluralistic alternatives. Jerome Bruner puts it this way: “ The fact of individual differences argues for pluralism and for an enlightened opportunism in the materials and methods of instruction. A curriculum , in short, must contain many tracks leading to the same general goal.”

Although it will be nice when research is able to tell us more about cognitive styles, student-centered reform of the curriculum does not hinge upon our ability to prescribe specific learning strategies for each student. When options and variety are offered, students may sample all forms of presentation, consciously or subconsciously learning more through one mode than another. Or, made aware of cognitives styles, students may diagnose their own learning patterns and choose the presentations that seem useful and effective for them (Cross, 1975).

(4) *The Goals of Learning*: A learned-centered curriculum does not mean that individual learners must necessarily determine their own goals, although the learning contact as undeniable advantages. But such a curriculum does recognize that the goals of learning are necessarily individualistic (Cross, 1975).

Moreover Cross's identification of four major dimensions, curriculum literature (Ornstein & Hunkins, 1998; Ornstein & Levin, 1993), classified learned centered design into four categories. Those are; (1) Child-Centered Designs, (2) Experience Centered Designs, (3) Romantic (radical) Designs and (4) Humanistic Designs.

(1) *Child centered designs*: In 1722, J.J. Rousseau published *Emile* in which he maintained that the purpose of education is to teach the people to live. By the turn of the next century, the Swiss educator Johann Pestalozzi stressed human emotions and kindness in teaching young children. Further, Friedrich Froebel introduced the kindergarten in Germany in 1837. These issues gave impetus to child-centered curriculum. Child-centered curriculum adopted by schools stressed the needs and interest of the students. Some stressed individualization while others grouped the students by ability or interests. Many child-centered programs today are carried on in free schools or alternative schools. One of these schools is Summerhill, founded by A.S. Neill in 1921. The school has been trying to replace authority with freedom.

Advocates of the child centered or student centered design believed that if we are to optimized learning then the student must be active in his or her environment. Learning should not be separated from the ongoing lives of students, as is often the case with the subject-centered designs. Indeed, it should be based on student's lives, their needs and interests (Ornstein & Hunkins,1998).

The meaning of the principle that the curriculum should be appropriate to the needs and interests of learners has been among the most misunderstood issues

of education, both by those who have supported it and those who have opposed to it. In the early days of this approach vague definitions of the term “need” created many controversies. First, the supporters of the “needs” criterion used it as the main basis for selecting and organizing both the content and learning experiences to the exclusion of all other criteria, at least in a theory. The criterion was also considered equally applicable to the selection of content and learning experiences on all levels (Taba, 1962).

It seems that the principle of meeting the demands of essential, significant subject matter and that of adapting education to the needs and interests of the students are not necessarily in conflict. As one differentiates the levels of choice, it is possible to fix the essential things to be learned and allow the details through which to learn them to be determined by student interest, thus providing both (Taba, 1962).

The shifting of emphasis from the tradition of subject matter to the needs and interests of children was part of Rousseau’s educational philosophy. Rousseau believed that children should be taught in context with their natural environment, drawing on their needs and interests in creating an educational program. Also they required guidance from the teacher. But the manner in which the teacher stimulated the student’s curiosity had to be appropriate for the particular developmental level of the child. In a very real sense, Rousseau was the first to advocate a developmental approach to teaching and learning (Ornstein and Hunkins,1998).

The child centered design, often attributed to John Dewey, was really conceived by Parker, who laid the foundations for this movement. Parker believed that effective education did not require strict discipline. Rather the approach to instruction should be somewhat free, drawing on the child’s innate tendency to become engaged in things that interested him or her (Ornstein & Hunkins,1998).

Dewey deduced similar notions in his early thinking. In 1896, he had a chance to put some of his ideas into action in his laboratory school at the University of Chicago. The curriculum was organized around human impulses:

the impulse to socialize, the impulse to inquire, the impulse to construct, to question, to experiment, and the impulse to express or to create artistically (Ornstein & Hunkins,1998).

The emphasis on the child displaced the emphasis on subject matter. In addition, when subject matter was presented, it was no longer separated into narrow divisions, but was integrated around units of experience or social problems. The idea that a solution to a problem required using methods and materials from several subject fields was inherent in the child centered, experience-centered curriculum. This new emphasis on the learner also led to “life needs”, “life adjustment education”, “persistent life situations”, “common learnings” and “core” methods for organizing bodies of knowledge and subject matter. Here the idea was to integrate subject matter from various fields as needed for the understanding and solution of social problems, as well as to meet the developmental needs of students (Ornstein & Hunkins,1998).

Child centered designs celebrate students’ interests. Students along with teachers negotiate what interests will be addressed with what content. Teachers and students participate in planning the unit , its purposes, the content focuses, the activities, and even the materials to be employed (Ornstein & Hunkins,1998).

Having students negotiate the curriculum enables them to gain ownership of their knowledge. It empowers them. Students so involved also fit into the current stress of constructivism. If we accept that constructivism is a way of coming to know one’s world, then it makes sense to tune into students’ needs and interests and give them opportunities to construct their own curricula and learning (Ornstein & Hunkins,1998).

(2) *Experience Centered Designs*: Experience centered curriculum designs closely resembled the child centered designs in that they used the concerns of children as the basis for organizing the children’s school world. They differed from child centered designs in their view that the interests and needs of children cannot be

anticipated and, therefore, a curriculum framework cannot be planned for all children (Ornstein & Hunkins,1998).

Those favoring the child-centered or experience centered curriculum placed heavy emphasis on the learner's interests. Dewey noted that the spontaneous power of the child, his demand for self-expression, cannot by any possibility be suppressed. For Dewey, interest was purposeful; it had to be taken into consideration. Experience was essentially the starting point for all further learning. He noted that the child exists in a personal world of experiences. His or her interests are those of personal concern, rather than relating to the total body of knowledge with its myriad facts, concepts, generalizations, and theories (Ornstein & Hunkins,1998). While Dewey believed that experience was a starting point of for further learning he has never advocate that making the child's interest actually the curriculum or placing the child in the role of curriculum decision maker (Ornstein & Hunkins,1998).

(3) *Romantic (Radical) Design:* Advocates of this curriculum claimed that there actually can be no curriculum development before the students arrive in the classroom and their needs and interest are accessed. They proposed to center all experiences in the school on the children's present needs. The school would provide opportunities to learn and possible content to be considered. The children would pick what they need and decide what they need. An underlying assumption of the radicals appears to be that the current society is corrupt, repressive, and unable to cure itself. Schools have used their curricula to control and to indoctrinate individuals into a particular cultural view rather than to educate and emancipate them. The curriculum is organized so that students develop intolerance for difference (Ornstein & Hunkins,1998). Paulo Freire noted that the purpose of education is to enlighten the masses about their present state of being denied their rights, to design situations in which they recognize their state of being and feel dissatisfied with it, and finally to gain those skills and competencies requisite for correcting the identified inequities (Ornstein & Hunkins,1998).

Emancipation is the goal of education. This emancipation refers to individuals gaining those awareness, competencies, and attitudes to enable them to take control of their lives. No longer are they under the control of others; no longer must they follow social conventions without any thought of reflection (Ornstein & Hunkins,1998). Learning is reflective; it is not externally imposed by a person in power. Education leads to freedom and emancipation. In the radical curriculum design, knowledge is not a finished product that sits in a unit plan or course syllabus. Learning is something that results from the interaction between and among people. It comes by challenging content and permitting different views about the content, as well as from critiquing the purposes of the information presented in the curriculum (Ornstein & Hunkins,1998).

(4) *Humanistic Design* : Third force psychology is closely related to the humanistic curriculum. To third force psychologist, behaviorism is mechanistic and behaviorists view the learner as a detached intellect and ignoring affective respond.

Maslow was a key figure in the development of third force psychologist. He saw self-actualization as a life achievement, a momentary state and the normal process of growth when a person's deficiency motives are satisfied. He taught that people could learn more about themselves by examining responses to peak experiences – those experiences which give rise to love, hate, anxiety, depression and joy. To him, the peak experiences of awe, mystery, and wonder are both the end and the beginning of learning. Hence, the humanistic curriculum, should value and attempt to provide for such experiences as a moment in which cognitive and personal growth take place simultaneously. Maslow emphasized that an individual did not become self-actualized early in life but has to start the process as a student (Ornstein & Hunkins,1998).

Carl Roger's work has been another major force. He assumes that people can enhance self-directed learning by drawing on their own resources to improve self-understanding, to learn self-concepts and basic attitudes, and to guide their

own behavior. The educator's task is to set the educational environment such that these personal resources can be tapped. Such an environment encourages genuineness of behavior, empathy, and respect for self and others (Ornstein & Hunkins, 1998).

The humanistic curriculum features activities that are exploratory, puzzling, playful and spontaneous all of which are vital for innovation and self-renewal. It offers an alternative to dull courses and depersonalization. Further, it addresses a concern that is determining the appropriate educational response to students who lack a purpose of living, good personal relation and self-regard. In this curriculum students may face each other in a circle and talk about topics that were once almost taboos – their fears about talking with dying as patients, their fears of dying themselves.

The function of the curriculum is to provide each learner with intrinsically rewarding experiences that contribute to personal liberation and development. The goal of education dynamic personal processes related to the ideals of personal growth, integrity and autonomy. The ideal of self-actualization is at the heart of the humanistic curriculum. A person exhibiting the quality of self-actualization is not only cognitive but also developed in aesthetic and moral ways. In other words, self-actualized person is an individual who does good works and has good character.

To proponents of humanistic curriculum, a curriculum goal might be to educate students so that they would learn how to recognize challenges, turn adversity into manageable tasks and trust their skills. This orientation emphasized that human action was much more than a response to a stimulus, that meaning was more important than methods, that the focus of attention should be on the subjective rather than objective nature of human existence, and that there is relationship between learning and feeling (Ornstein & Hunkins, 1998).

Humanistic curriculum designs stress the development of positive self-concept and interpersonal skills. Here the stress, though still on individual, encourages intuition and transcend. Through intuition a person is able to access

his or her creative thinking and to generate a holistic perception of reality. Transcendent education is lured by the concept of wholeness or comprehensiveness of experience. It emphasizes the general dispositions of humans for hope, creativity, awareness, doubt and faith, wonder, awe and reverence. With this sense humanistic education in the 1970s absorbed the notion of confluence. Confluence education is a melding of the affective domain (feelings, attitudes, values) with the cognitive domain (intellectual knowledge and problem solving abilities). This approach adds the affective component to the conventional subject matter curriculum that is already in place. Humanistic educators realize that the cognitive, affective, and psychomotor domains are interconnected and that the curriculum design should address these dimensions.

2.2 Futures Thinking

Futures thinking allow us to reflect on fundamental change over the next 10, 15, 20 or more years. It offers a multi-disciplinary approach to inquiry transformations in major areas of social life, including education. It probes beneath the surface of received opinion in order to identify the dynamics and interactions that are creating the future. While the future cannot be predicted, one can look for a range of possible futures and illuminates the ways that policy, strategies and actions that can promote desirable futures and avoid those we consider to be undesirable. Futures thinking is about stimulating strategic dialogue, widening our understanding of the possible, strengthening leadership, and informing decision-making. There is a variety of methods to shed light what is possible and can inform the assessment of alternative actions (OECD, 2006).

There is a tendency toward short-term thinking in both the public and the private spheres. In government for instance, election cycles often determine the time horizon and businesses may often focus on immediate financial reporting periods. In contrast *Futures thinking* introduces perspectives to look beyond of

immediate constraints. Existing attitudes and frameworks for action are always open to change. Futures thinking can help to create an environment for informed decision-making and provides a sustainable balance between short- and long-term policy goals (OECD, 2006).

Governments and educational sector stakeholders invest resources, time, and effort in present for a return that will come years if not decades later. The neglect of the long-term becomes more problematic in a complex, rapidly changing world, with a growing number of stakeholders in schooling. As OECD countries move rapidly towards becoming knowledge societies, with new demands for learning and new expectations of citizenship, strategic choices must be made not just to reform but to reinvent education systems so that the youth of today can meet the challenges of tomorrow. Futures thinking enhances the capacity to anticipate change, which in turn helps systems to grasp opportunities, cope with threats, develop creative strategies, and choose pathways of development paths. Rather than simply responding to change, education leaders and organizations can anticipate and deal with it proactively (OECD, 2006).

Despite education's fundamental impact on individuals and societies over the long-term futures thinking is relatively less developed in education compared with a number of other sectors, such as energy, the environment and transportation. Futures thinking is concerned to education because it clarifies understanding of the major forces which drive change in schools. Much educational decision-making focuses on the short term, solving immediate problems or make-established practice more efficient. Education's institutional cultures are much more geared up for looking backwards at the past than forwards into the future. Futures thinking is about changing tomorrow through action, not just critique of today (OECD, 2006).

2.2.1 Foresight Methods/ Future- Oriented Methodologies

A complex interplay of social, cultural, political, scientific, technological and environmental factors shapes our future. Our choices, however, can also influence events and processes that may change the future. This potential influence on the future makes it worth investing time to explore in a systemic manner where we are heading to and in which direction we would like to evolve. For schooling, this means asking ourselves: What kind of educational system is evolving? Is this what we want for future generations? Or should we adjust the current path of development towards something more desirable? (OECD, 2006)

A range of future-oriented methodologies help us to see more clearly what the future may bring and explore options for shaping the future, in terms of what we want and what is possible. Such as Technology Foresight Method, Scanning Method, Extrapolation Method, Scenario Method, Delphi Survey Method (Loveridge, 2009). It is possible to specify the dominant characteristics of each methodology and also they are often adaptable to specific purposes and can combine several aspects at the same time. Here is a selection of the major methodologies which can contribute to a systematic examination of the future (OECD, 2006):

Technology Foresight Method: This is a systematic way to observe the long-term future of science and technology with the aim of identifying the emerging technologies that will probably produce the greatest economic and social benefits.

Trend Analysis (Trend Impact Analysis/ Extrapolation Method/ Trend extrapolation): Trend analysis is a simple forecasting approach that extrapolates historical data into the future, while taking into account unprecedented future events. This method permits an analyst to include and systematically examine the effects of possible future events that are expected to affect the trend that is extrapolated. The events can include technological, political, social, economic and

value-oriented changes. The point of departure is the strategic projection based on historical data, assuming an absence of unprecedented future events. Expert opinions are then used to identify future events that might cause deviations from the projection and evaluate their likelihood and potential strength. By combining surprise-free extrapolations with judgments about the probabilities and impacts of selected future events, trend analysis provides a solid basis for building scenarios (OECD, 2006).

Scanning Method: Environmental scanning is an approach to detecting hidden clues about the future among available information sources. It can be described as the activity of rapidly surveying about everything.

Delphi Method: The Delphi method is an exploration technique that facilitates the collection of information and knowledge from a group of experts on a specific issue. The Delphi method involves a panel of experts that judge the probability, importance and implications of factors, trends, and events regarding the questioning issue. It follows a structured and iterative process, in which a series of questionnaires is sent (or handed) to selected experts. Each round of questionnaires includes all of the participants' earlier responses and the participants can modify and adapt their own statements. This usually leads to a consensus forecast on future trends, with multiple expert opinions converging to a single position. Interaction among participants is controlled by the researcher who analyses questionnaires. Each round of questionnaires is prepared based on the analysis of the responses to the prior one. The Delphi method is also suitable for scenario development because it feeds the process with the perspective of one group of stakeholders, thereby enriching the multi-disciplinary exercise of identifying trends (OECD, 2006).

Horizon Scanning: Horizon scanning is about finding early signs of potentially important developments through a systematic examination of potential

threats and opportunities, with emphasis on new technology and its influence on the issue at hand. The method calls for determining what is constant, what changes and what constantly changes. It explores novel and unexpected issues as well as persistent problems or trends, including matters at the margins of current thinking that challenge past assumptions. Horizon scanning is often based on a desk research – comprising database and hard-copy literature reviews, as well as Internet searches. It can also be undertaken by small groups of experts who are at the forefront in the area of concern: they share their perspectives and knowledge with each other so as to scan how new phenomena might influence the future. A solid scan of the horizon can provide the background to develop strategies for anticipating future developments and thereby gain lead-time. It can also be a way to assess trends to feed into a scenario development process (OECD, 2006).

Scenario Method: The scenarios used as a tool for reflection, for collaboration, for innovation, and for transformation. The scenarios are set around 15 to 20 years in the future – long enough for significant change to occur (OECD, 2011). Scenario method is the main tool for this study and will discuss in detail in Chapter 3.

2.1.2. Educational Futurism

The educational system is one of the most forward-looking needed sector because when people attends school for the sake of future. As Seneca wrote, ‘Non scholae, sed vitae discimus’ (we learn not for school but for life). But, it is necessary to emphasize in this connection that the future does not yet exist, which we should bear in mind considering how various kinds of mysticism (such as astrology, numerology, etc.) flourish (Paludan, 2006). It might be tempting to disregard the future altogether since it does not exist so, it is not observable and measurable. The importance of considering the future emerges even more

significantly when shaping the educational system (Paludan, 2006).

Educational Futuristics encourages innovative use of human and machine-based developments in teaching and learning and addresses our need to both anticipate and also make the most of planned and unplanned changes. Guided by cautious optimism, educational futuristics promotes an empowering consciousness of possibilities to help us develop a future. If people are to stay up with future-shaping matters and uses of future-study tools they must improve the use of futuristics and with far less craft than is warranted. In consequence, our under-developed efforts seldom exceed expectations – the remedy for which lays in getting real about the matter, as our students would say. Futures Thinking is the key to successfully futurizing education (or, for that matter, for bringing along any social institution) (Shostak, 2010).

Shostak (2010) argued that along with many thousands of other professional practitioners around the globe he employ futuristics with four goals in his mind:

- 1) To trace pathways that link seemingly unrelated and scattered matters (or, as a youngster once put it – “connect the dots”).
- 2) To identify preferences that help us decide choices.
- 3) To uncover possibilities.
- 4) And to identify major perils, the better to help others learn as early as possible what we might do to mitigate, if not eliminate them.

2.3. Schooling of the Future

Under this heading six scenarios constructed through the OECD/CERI program on “Schooling for Tomorrow” will be briefly presented. These scenarios purpose is to create understanding of how schooling might develop in the years to come and the potential role of policy to help shape these futures. While this does

not exhaust approaches to forward-looking policy thinking, scenario development is a particularly effective way of bringing together the “big picture” of strategic aims, the long-term processes of change, and multiple sets of variables. Despite education’s fundamental characteristic of yielding benefits over very long time spans, forward thinking has been little developed in the field of education when compared with other policy sectors (OECD, 2001).

Scenario development is crucial to the *Schooling for Tomorrow* Project and these scenarios are informed by OECD research and analysis. Scenarios have been described as “internally consistent and coherent descriptions of hypothetical futures, reflecting specific perspectives on past, present, and future developments”. The word “hypothetical” is critical – they are not intended to be totally realistic but to help clarify the directions in which situation is going and how people might influence that pathway. They are intended to serve as a basis for action, by helping decision-makers think strategically about institutional change. The Trends Tool reported next helps to anchor the scenarios in today's circumstances, and to consider major trends and their consequences in the field of education. Scenarios considered alongside more tangible matters such as the ageing society, the knowledge economy, globalization, and technology, it is also important to consider less-tangible ones such as changing values, social fragmentation, new forms of governance, to examine deeper processes going on. Through these tools and analysis, *Schooling for Tomorrow* seeks to stimulate reflection on the major changes occurring in education and its wider environment, and to promote long-term approaches in decision-making (OECD, 2006). An infinite variety of scenarios could be generated from societal and educational trends, multiplied by different contexts, purposes, and stakeholders. The six scenarios of the *Schooling for Tomorrow* Project, therefore, are highly selective among possible futures (OECD, 2006).

In addition to above mentioned the *Schooling for Tomorrow* scenarios were designed to explore possible futures for schooling for use by different stakeholders in education – from policy-makers to teachers and parents. Scenarios

not rigidly demarcated between levels of education and they cover organized learning from the primary through late secondary education. The six scenarios are not specific to the primary or secondary phases, though it can be expected that certain aspects would apply more directly to one or other of these cycles. Furthermore the scenarios are outcome-based snapshots of the future, depicting possible end states of specific development paths. These outcomes might give rise to new developments, becoming starting points for new futures. The focus on education, rather than broader social or economic scenarios, has been deliberately chosen to give educators tools using variables with which they are familiar (OECD, 2006).

The OECD “Schooling for Tomorrow” scenarios combine different elements such as: Trends, plausible inter-relationships between clusters of variables, and guiding policy ideas. They are thus neither purely empirical (predictions) nor purely normative (visions). They have been constructed as alternatives for schooling per se rather than as educational extrapolations based on scenarios developed for other fields (the social, economic, technological, environmental, cultural, etc.). These schooling scenarios have been constructed in a time frame of approximately 15 to 20 years – long enough for significant change to occur beyond immediate political cycles, but not so far off as to be remote to any but futurists and visionaries (OECD, 2001).

One can speculate that these six possible futures for schooling to help focus thinking on where education is going in. They have been extensively used to inform policy debate and professional development in many countries. They are not *predictions* seeking to forecast futures as accurately as possible. Prediction is doomed to failure and this is not the aim. The value of futures thinking is in opening minds to consider new possibilities and to deal with change. Secondly, these scenarios *are not visions* though others may use them to clarify their own visions. They are descriptive of possible futures. Thirdly, they refer to learning systems (schooling) not schools as organizations. They are not the “school of the

future”. Lastly, the *Schooling for Tomorrow* scenarios do not spell out all the steps that might lead to these futures (OECD, 2006).

The OECD scenarios for future schools have been developed under three broad headings – the “status quo extrapolated”, “re-schooling”, “de-schooling”. In the first scenario, large, bureaucratic systems continue as the norm, through the strength of the interests with a major stake in them and through the sheer difficulty of organizing equally effective alternatives. In the second, market approaches are extended much more radically, bringing innovation and dynamism but also augmented risks of exclusion. In the third, schools are strengthened significantly by investing in them as focal centers for communities, giving them a range of important new tasks, responsibilities and partners. The fourth sees “learning organizations” for the young become typical of the very large majority of schools, based on demanding, flexible programs for all. The fifth scenario presents schooling consistent with a highly developed “network society”, heavily exploiting ICT’s potential and leading to the widespread dismantling of school institutions. The final scenario addresses a future in which teacher shortages reach crisis levels yet prove largely resistant to the policy initiatives taken to rectify them. Scenarios help to clarify the main directions and strategic options for schooling over the long-term, as well as the policy issues that arise in shaping different futures. They are tools for reflection, not analytical predictions (OECD, 2001).

Scenario 1 “Back to the Future Bureaucratic Systems”: This scenario is built on the solidity of traditional school systems, described by strong bureaucratic elements and pressures towards uniformity. Despite education being to the fore on political agendas, some schools resist to radical change, because of the strength of the urgent interests of the stakeholders (OECD, 2001). In this scenario, schools are chained in powerful bureaucratic systems. Strong pressure for uniformity and the fear of change combine to make the schools resist fundamental transformation, despite criticism of the school system by the public

and the media. Decision-making is generally hierarchical, and outsiders have little influence on a system. Traditional teaching, with teacher-to-student learning settings is still important and there is little room for informal learning and community interaction. There is little perception of lifelong learning as schooling operates to its own self-contained conventions. Education is solidly rooted in the public consciousness and traditional means of delivery, but its financial and human resources are stretched as the schools are assigned additional new tasks and responsibilities, given problems arising in families and communities (OECD, 2006).

The model is consistent with a continued reliance on top-down decision-making and centralized sovereignty over education. It might also depend on a strong elite culture, with the diplomas of formal education continuing to dominate as the currency of social selection and recognition of competence. This scenario assumes a degree of societal trust in public institutions – the powerful state system is preferred over the perceived risks of systems determined by diversity and autonomy, or by the market (OECD, 2006).

Scenario 2 “Schools as Focused Learning Organizations”: Trends towards more market-oriented schooling models are much closer to the experience and cultures of some countries than others. In this scenario, these trends are extended importantly in the face of widespread dissatisfaction with the performance of relatively uniform structures of public school systems and with current funding arrangements to provide cost-effective solutions. In response to these concerns, governments encourage diversification and the emergence of new learning institutions through funding structures, incentives and de-regulation, and discover considerable market potential, nationally and internationally. Significant injections of private household and corporate finance are stimulated (OECD, 2001).

The development of a much more market-oriented model for schooling is likely to depend on a number of factors. It would be fuelled by a substantial sense

of dissatisfaction with established provision among strategic consumers, especially articulate-middle class parents and political parties, combined with a culture where schooling is already viewed as much as a private as a public good. Wide differences of educational performance would add weight to the criticisms, while the development of the market-model in schooling would itself be supported by a degree of social tolerance of inequality. The business environment is likely to be highly influential. On the one hand, entrepreneurial cultures might be best for identifying new markets and approaches that break with convention. On the other hand, highly developed traditions of human resource development, with a deep understanding of soft skills and learning, might be needed to generate successful demand-oriented approaches of competence development, measurement and accreditation. (OECD, 2001).

Schools could respond to the demands of the knowledge economy by developing into “learning organizations” focused on diversity, experimentation and innovation. These schools would contribute to the development of a highly competitive society (OECD, 2006). In this scenario, education is focused on knowledge- building for lifelong learning. Schools are revitalized around a knowledge agenda: experiment and innovation provide the basis for students to develop academic competence as well as others such as artistic talents. There is a diversity of organizations and settings, and some schools develop close links and working networks with tertiary education, some with enterprises such as media and technology companies. This scenario demands far-reaching equality among schools – in status, conditions and prospects – for otherwise the focused learning organization would not be the typical school. ICT is prominent, and ICT use is evaluated regularly. New forms of evaluation and competence assessment flourish, reflecting the aptitudes and achievements of all learners (OECD, 2006).

Schools are therefore very open and responsive to trends in the wider environment. The effects of an aging society on this scenario are difficult to predict nor is it obvious what kind of social mechanisms would favor the emergence of this scenario. It might arise from a high degree of social stability

that provides the necessary levels of trust and support. Or, it might be a response to disruptions that shatter the conventional ways of traditional school systems (OECD, 2006).

Scenario 3: “Schools as Core Social Centers”: In this scenario, the school comes to enjoy widespread recognition as the most effective bulwark against social fragmentation and a crisis of values. There is a strong sense of schooling as a public good and a marked upward shift in the general status and level of support for schools. Great priority is given to the social/community role of schools, with more explicit sharing of programs and responsibilities with the other settings of further and continuing education. Poor areas in particular enjoy high levels of support (financial, teaching, expertise and other community-based resources) (OECD, 2001). Scenario 3 describes a strengthened, creative school institution available to all communities, meeting critical social responsibilities while silencing critics. This scenario fits a longstanding tradition advocating that closer links be forged between schools and local communities. More recently, such arguments have acquired an added urgency and relevance with the fragmentation occurring in many family and community settings, raising new concerns about the socialization of children. In response to these concerns, the school could thus become a social anchor for communities (OECD, 2001).

Schools could function as social centers in new community arrangements with learning at the core. These schools would have low walls and open doors because the main aim of this scenario is to increase social integration. As a shared responsibility of the entire community, schooling draws on expertise, interest and experience from sources ranging from business to higher education, from religious groups to retired people. Schooling takes place under different organizational forms, which go beyond formal schooling. ICTs are part of the structure and are used extensively for peer-to-peer and cross-border networking, as well as for interactions between students and teachers, and between schools and parents/communities. A high level of participation by all in society, of all ages,

causes the raising importance of informal learning rather than formal schooling (OECD, 2006).

Both the cognitive and non-cognitive are prominent, with the aim of building a strong structure for lifelong learning. The sector enjoys generous financial support in pursuit of high standards and quality learning environments in all communities, both rich and poor, and to make teaching attractive to all professionals (OECD, 2006). Arguments in favor of this scenario are contradictory social conditions. It could arise in reaction to a loss of the social cohesion that traditionally comes through family, work, community, and church. Increasing strain on these structures could leave education as the primary source for fostering social capital. On the other hand, the wide-open school doors in this scenario may prove practicable only when there is ample family and community support (OECD, 2006).

Regardless of the cause, this scenario shows substantial blurring in the boundaries of demarcation between schooling and the broader environment. How far this goes depends on perceptions of stability; trust in public institutions, and belief in equity (OECD, 2006).

Scenario 4: “The Extended Market Model”: A highly developed learning market for youth could be the response by stakeholders dissatisfied with the range of choice offered by uniform public education. This is demand-driven, with new providers emerging but also obvious risks to social equity (OECD, 2006). In this scenario, education takes on market characteristics and choice becomes prominent. This is triggered by dissatisfied learners and by government authorities that encourage diversification and a reduction of their own involvement in schooling. Schools do not abolish but become just one type in the diversity of educational systems, alongside privatization and public/private partnerships (OECD, 2006).

The education sector attracts new professionals and the business environment fosters innovation through diverse training and accreditation

arrangements. The diversity of the market creates comparable diversity in teaching careers, including a growing international market for teachers (OECD, 2006).

ICT, powerful and indispensable, supports a range of virtual programs, some traditional educational tasks as well as skills and learning for specific interest groups. Students take advantage of the education offered through the large market of community-inspired, grass-roots organizations (OECD, 2006).

Scenario 5: “Learning in Networks”: Schooling takes a radical shift where conventional education intuitions abolish, to be replaced by informal learning networks. It would be part of a burgeoning network society, with very different social arrangements in all spheres (OECD, 2006). This radical, perhaps anarchic, scenario would see the replacement of schools with universal networking instead. The abandonment of the institutions might be driven by public dissatisfaction with current schools and the widespread access to massive new learning media. As government involvement decreases, parents and students assume more responsibility for education. Learner networks are an important part of the network society, based on interaction and cooperation. The networks form around diverse parental, cultural, religious and community interests; some operate locally through home-schooling and small group interests, others through distance learning and international networking. Effective and obtainable ICT is critical for innovative learning options to emerge. Educational tools provide learners to evaluate their own learning and share resources. As the teacher disappears with abolishment of the classroom, it is probable to emerge new learning professionals. So do the major media and ICT companies become active in mediating the learning networks (OECD, 2006).

The scenario assumes small government and the rejection of organized institutions. It assumes that the networks based on diverse family, community and religious interests are strong enough, in breadth and depth, to form learning networks on a universal basis. As a universal model, it would be most likely in

affluent, high-skill, technology-intensive societies. However, powerful local networks could also be spontaneous reactions to chaotic social conditions and conflict. Given the demise of institutionalized education, few boundaries would exist between initial education and lifelong learning. This scenario is consistent with a range of cultural and philosophical approaches, but it would be largely incompatible with strong elite cultures, partly because the education system loses its pre-eminent role in social selection. While this scenario promotes diversity and democracy, it also runs risks of exclusion, especially for groups that have traditionally relied on the school as a vehicle for social inclusion (OECD, 2006).

Scenario 6: “System Meltdown”: This scenario can be regarded as an elaboration of a worst case in response to the question posed in conclusion of Scenario 1 – would the status quo survive were teacher shortages to turn into a real staffing crisis? OECD (2001) report indicated that this meltdown scenario comes about through the conjuncture of four main factors: a) a highly skewed teacher age profile resulting in outflows through retirement far out-stripping inflows of new recruits; b) a long period with very tight labor market conditions and general skill shortages resulting in severe difficulties both to recruit new teachers and to retain them in the profession; c) the upward shift in teacher rewards and/or staffing levels needed to make a tangible impact on relative attractiveness being viewed as prohibitively expensive, given the sheer numbers involved; and d) even when measures are proving effective, they require long delays before a noticeable effect results in greater numbers of practicing teachers, making it still harder to break into the vicious circles.

The scenario addresses a staffing crisis in a context that differs in at least two important respects from that of the baby boom of the 1960s. First, the quality demands and expectations of learners for extended educational careers have moved on substantially in forty years. Second, the attractiveness of school-level teaching as a career has declined against a continuing upward trend in the share of advanced-skill posts throughout the economy as a whole, posts that often enjoy

greater rewards. This combination of factors comes together in this scenario in the form of a very serious crisis for schools (OECD, 2001). As the teacher exodus takes hold and the scale of the meltdown crisis is recognized, potentially very different outcomes could be part of Scenario 6.

There are many uncertainties in this scenario, therefore, and its importance in some countries may lie less in its predictive power and more in sharpening awareness of the possibility of severe teacher shortages and their consequences. Some might judge it to be unlikely given the proven resilience and adaptability of school systems: they would argue that some matching of teacher supply and demand will always be achieved and collapse avoided, though perhaps with costs to be paid in educational quality (OECD, 2001).

The crisis results from an outflow of teachers, leaving early on, mid-career or through retirement, that far outstrips the inflow of new recruits in a tight market for skilled labor. The crisis is recognized too late. The policy measures that might rectify it take too long to show results. Social inequalities are exacerbated by the disparities in the depth of the crisis especially between different socio-geographic areas (OECD, 2006).

Reactions to “system meltdown” could vary. There could be a downward spiral of conflict and retrenchment, with further declining quality or interruption of educational delivery. Or it might spark emergency strategies with stakeholders joining forces to build a new system. In all cases, ICT plays an increasingly important role by performing some functions traditionally provided by teachers, *e.g.* virtual-reality devices, distance learning modalities, on-line evaluation systems, and interactive television (OECD, 2006). “System meltdown” is more likely in affluent, high-skill societies, where teachers have more attractive job alternatives. In poorer societies, the teaching profession will remain relatively attractive and high-status. On the other hand, system meltdown in rich societies could attract an influx of trained teachers from poorer countries, with damaging consequences for them with their limited resources for retaining or replacing qualified much-needed teachers. Educational meltdown could be associated with

catastrophes such as wartime destruction or drastic epidemics. Or it could happen in calm conditions through the combination of causes and the lack of anticipation regarding problems in the teaching profession (OECD, 2006).

2.4 Major Trends for Schools of the Future

The future is inherently unpredictable. Yet, everyone - including policy makers and managers in education - need to make plans and take the future into account. Looking at trends informs our ideas about what might happen through better understanding what is changing in education's environment. Using trends is not straightforward. Opinions differ on historical developments and which ones are most important. Even when there is agreement on the past, the future will often not turn out to be a smooth continuation of past patterns. Moreover, emerging trends barely visible or noticed at the present time may become critically important in the future (OECD, 2006).

In this part of the literature review major trends for the schools of the future is reviewed under two themes. Following figure (2) depicts the flow of the test of the literature review.

2.4.1 Globalization

Globalization refers to a diverse set of important changes, often highly controversial. Viewpoints differ sharply on whether they are positive and to be encouraged, or grudgingly accepted, or else to be fiercely resisted. Globalization has a strong economic base in growing interdependency across countries and between enterprises, involving increased and more liberalized trade, flows of finance, persons and services, the "borderless world" of rapid electronic communication and exchange, and a range of other on-going developments.

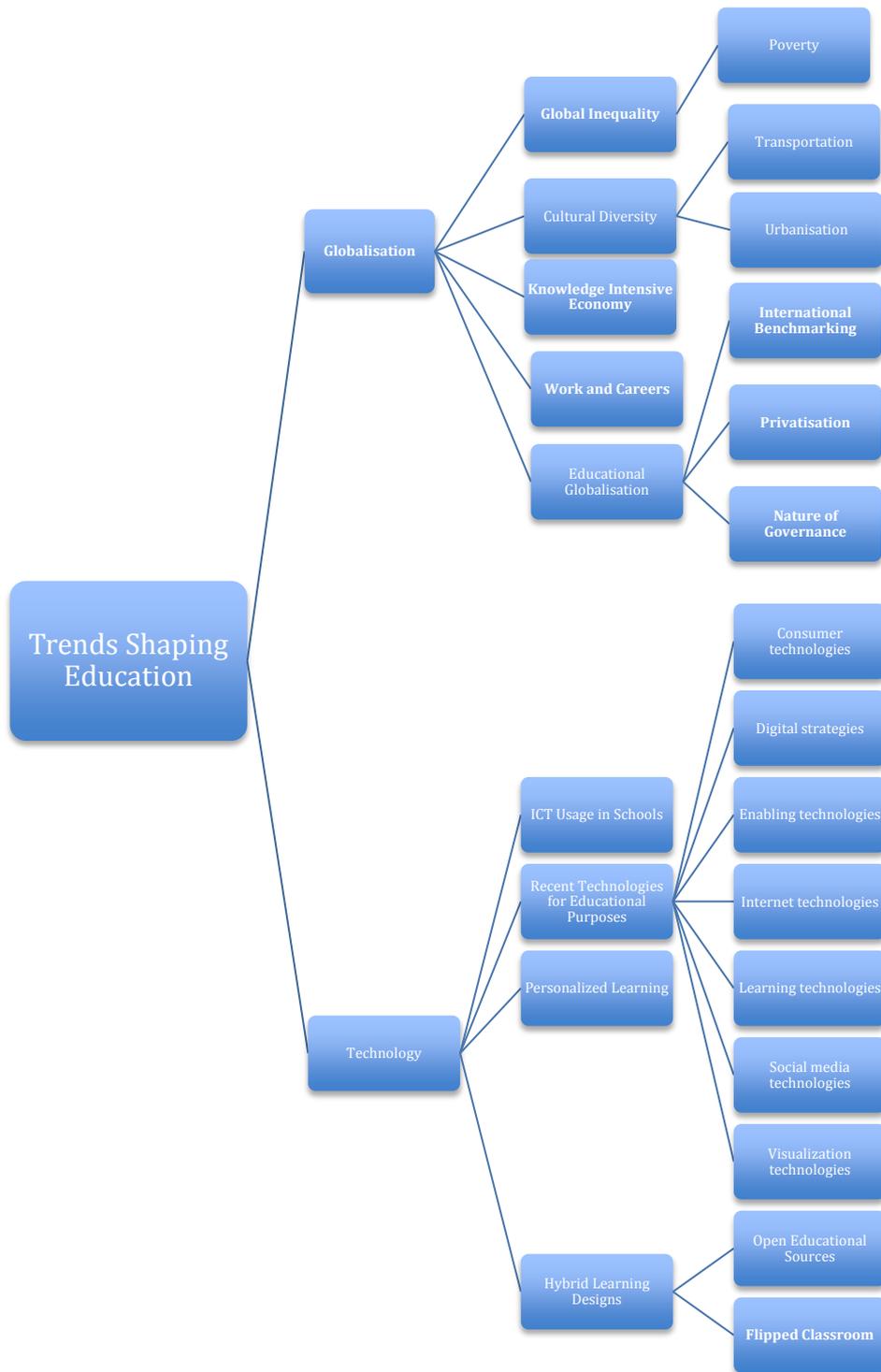


Figure 2: Major Trends for Schools of the Future

It refers politically to the internationalizing changes introduced by governments and NGOs as well as the prominence of international bodies/associations of varying statuses, powers, and memberships.

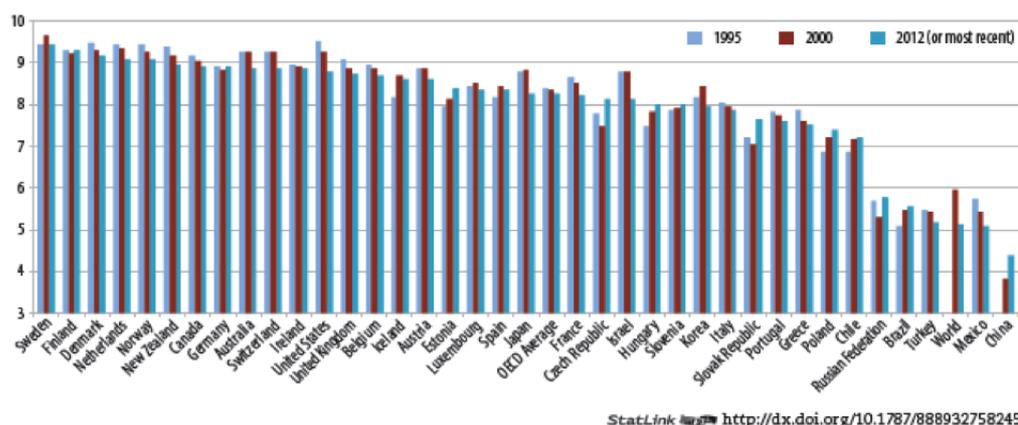
In the world of today and tomorrow, such international bodies are inevitable in some form – even curbing the “excesses” of globalization would ultimately depend on coordinated international action – but they attract growing controversy and are criticized variously for the approaches/philosophies they espouse, the volume of resources they control, or their apparent distance from the democratic process (Carnoy,2001).

2.4.1.1 Knowledge Intensive Economy

OECD economies can now accurately be described as knowledge-based, a matter of obvious value to schools, given their unique set of educational responsibilities. The implications of these changes for education, and the extent to which schools are characterized by the organizational features typically found in knowledge-intensive sectors. OECD/CERI report (OECD, 2000a) summarized some of the key indicators of the developing “knowledge-based economy”. The OECD’s structural analysis of industrial development supports their conclusion. It has been shown that the sectors that use knowledge inputs such as research and development and skilled labor most intensively grew most rapidly. At the same time, the skill profile is on an upward trend in almost all sectors. In most OECD countries, in terms of employment, the most rapidly growing sector is knowledge-intensive business services (OECD, 1998a).

The World Bank developed an index through which to measure knowledge intensity. This Knowledge Economy Index (KEI) specifically compares country performance on four pillars of a knowledge economy: (1) Economic Incentive and Institutional Regime; (2) Education and Human Resources; (3) The Innovation System; and, (4) Information and Communication Technology. Based on this

index, countries such as Denmark, Finland, the Netherlands, Norway and Sweden are rated as the most knowledge intensive, while China, Mexico, and Turkey are rated as the least knowledge intensive. The World Bank KEI has only been calculated since 1995. From the presented data, it would seem that economies across the OECD, even those rated most highly, are remaining steady or decreasing in knowledge intensity. However, it is important to note that for many OECD countries the period of time since 1995 may not capture much of their prior transition (*see Figure 3*). Either way, education systems around the world will face the need to provide students with the skills necessary to succeed in a globalized and knowledge-intensive world at varying degrees. This should be done of course, in conjunction with the ongoing need for vocational and other skill sets that will serve economies across time (OECD, 2013).



StatLink <http://dx.doi.org/10.1787/888932758245>

Note: The Index is created from around 109 structural and qualitative variables for 146 countries. More information about this Index can be found in the StatLink and online at <http://go.worldbank.org/SDDP3IIT40>.

Source: World Bank (2012), *Knowledge For Development: KEI and KI Over Time Comparisons*.

Figure 3: Knowledge Intensive Economy (World Bank’s Knowledge Economy Index, in 1995, 2000 and 2012)

The high-level OECD forums on 21st century transitions analyzed this inherent openness by distinguishing between opportunities and risks (OECD, 2001). There is agreement that technological advances in train now could be as

significant as the earlier radical shifts associated with the steam engine, electricity, and the car, whether referring to ICT, bio-technology, or new materials technologies. But, there are also risks, including those possible schisms and divides will grow – between haves and have-nots, risk-takers and risk-avoiders. Addressing such divides defines important challenges for education, including schools.

So marked have been the shifts towards the integration of ICT into work, and the key economic role of knowledge and learning, that the term “new economy” has entered the policy and media lexicon. How far such “new economy” characteristics are typical of the OECD as a whole is still debatable, especially in the light of recent economic downturns and the loss of confidence in the technology sector in particular. By the time current school students are active in the job market, however, such cautions and caveats may well be long forgotten (OECD, 2001).

2.4.1.2 Work and Careers

Flexibility is commonly thought of as characteristic of twenty-first century working life. People are more likely to work for a series of employers, rather than just one for their lifetime. Furthermore, career trajectories can increasingly be redefined and redirected at all stages of life, while technology has provided an opportunity for more individuals to work remotely and yet stay connected to their workplace. This section examines flexibility in the labor market through two trends: the number of full-time workers, and the number of paid workers compared to those self-employed. An important objective of education and training is to prepare young people for the labor market and to help organize professional development for working adults. These trends form a natural part of education’s wider context (OECD, 2013).

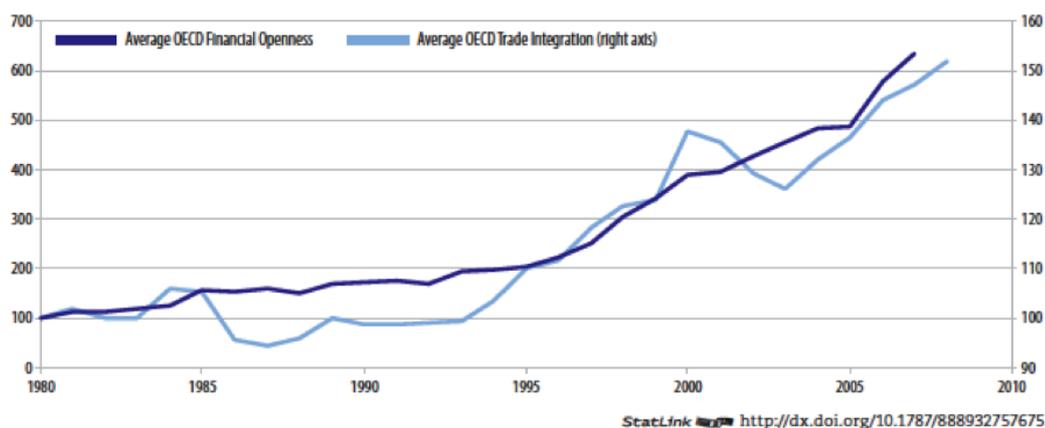
Since the beginning of the 20th century, the countryside has been

transformed in many countries, with urbanization and the widespread exit from agriculture. Even the factories that lay at the heart of jobs and economic strength within living memories are now declining as the place of employment. With the possible dawning of the new economic age, these major movements are far from over (OECD, 2001). Service employment has continued to grow in OECD countries, and now accounts for three-quarters of employment in several countries. The overall OECD average stood at 65% in 1999 (OECD, 2001).

In addition to that there are some global policies about the new economy. The GATS has therefore instituted a general framework and an agenda intended to progressively liberalize international trade in services. The Agreement must therefore be seen as the first step or launching of a process rather than as its final outcome. It defines the broadest possible starting point to liberalize trade in services in the future. Article XIX is very clear in this respect, establishing as it does that "Members shall enter into successive rounds of negotiations, beginning not later than five years from the date of entry into force of the Agreement Establishing the WTO and periodically thereafter, with a view to achieving a progressively higher level of liberalization. Such negotiations shall be directed to the reduction or elimination of the adverse effects on trade in services of measures as a means of providing effective market access."

It is only a small step from this to saying that the existence of certain national regulations can impede the liberalization so fervently advocated by transnational companies and the WTO. For example, when the liberalization of trade in a given service implies that a company will be able to establish itself abroad, without restrictions, the question of the deregulation of the national market is posed more or less pressingly depending on the activities and the country concerned. Furthermore, this process can involve a possible encroachment on national sovereignty, as apparent from the disagreements that emerged during the negotiations for the Multilateral Agreement on Investment (MAI). In this context, the fact that many services traditionally supplied by the public sector end up in the hands of the private sector, or are targeted by the

advocates of privatization, is giving rise to considerable concern among all those who wish to protect the essential role of the public services in the future. The subordination of education to market forces may well undermine its accessibility and aggravate social inequalities. Public education is undoubtedly facing this danger in several countries today.



Note: Data normalised, where 1980/1981=100, and then presented as an annual index. Trade integration is a sum of imports and exports expressed as a percentage of GDP. Financial openness is a measure of international investment, and is calculated by adding the assets and liabilities held abroad and similarly expressed as a percentage of GDP.

Source: OECD (2011), *Divided We Stand: Why Inequality Keeps Rising*.

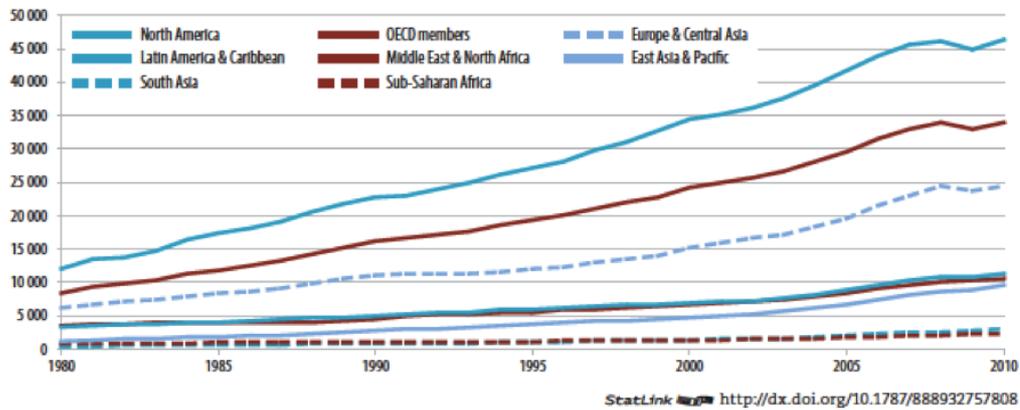
Figure 4: Integration of Trade and Financial Markets (Developments in financial openness (left axis) and trade integration (right axis) as index of OECD average, 1980-2008)

A key measure of a country’s “openness” or “integration” in the world economy is the ratio of trade (the sum of exports and imports) to GDP. This ratio represents the importance of trade in the economy of each country. Trade integration and financial openness have increased dramatically on average across all OECD countries in recent decades, especially since the early 1990s, notwithstanding some volatility created by larger economic events (see Figure 4). These cross border interconnections have an impact on national innovation and competitiveness agendas, and also on skill forecasts and emerging occupations.

For education, national priorities for skills development have a direct impact on subjects taught in basic and higher education; for example, encouraging the study of science and mathematics, or harnessing the power of creativity and the arts to drive innovation (OECD, 2013).

2.4.1.3. Global Inequality

Global inequality has increased over the last two hundred years far more than anything experienced in earlier times. There has been spectacular economic growth in Western countries in the past two centuries, much of it in the past 100 years. Regional economic inequality has existed for decades. However, since the 1980s, the regional disparity in affluence has grown ever more marked between the developed countries of the OECD and many countries in the rest of the world. OECD member countries, particularly those in North America, have seen steadily increasing prosperity despite a small dip during the financial crisis of 2008/09.



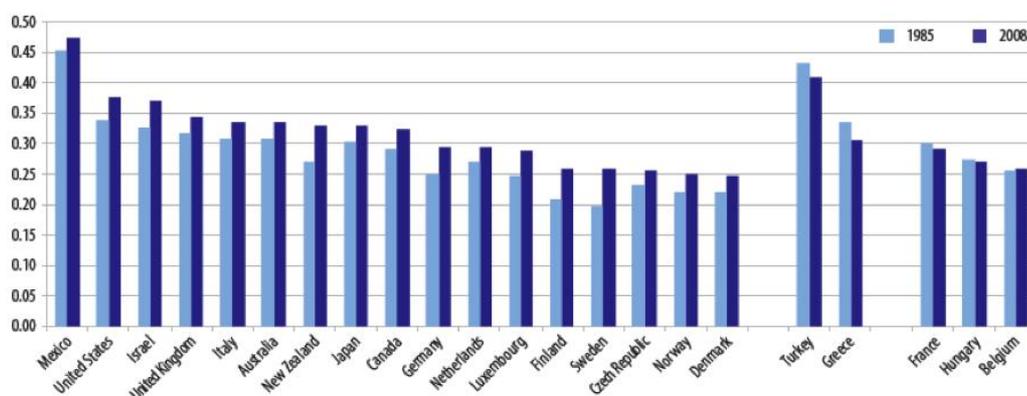
Note: Data presented in purchasing power parity (PPP) current international dollars. An international dollar would buy in the cited country a comparable amount of goods and services a US dollar would buy in the United States.

Source: World Bank (2012), World Databank: GDP Per Capita, PPP.

Figure 5: Gap Between Richer and Poorer Regions (GPD per capita by region, 1980-2010)

While countries from other regions have not enjoyed the same increase in wealth, they were more insulated from the consequences of the financial crisis than their wealthier counterparts. The gap between the richest and poorest regions (see *Figure 5*) in terms of GDP per capita has widened on average from 8 000 international dollars in 1980 (North America compared to South Asia) to 44 000 international dollars in 2010 (North America compared to Sub-Saharan Africa) (OECD, 2013).

Income inequality is often represented by an index known as the Gini Coefficient for individual's income within a population. Between 1985 and 2008 the coefficients reveal growing income inequality in most OECD countries. The highest level of inequality was measured in Mexico in both of the years shown in the Figure 6, followed by Turkey and the United States. Despite growing slightly during the period shown, Denmark and Norway had the lowest levels of income inequality.



StatLink  <http://dx.doi.org/10.1787/888932758340>

Note: The Gini Coefficient is an indicator of income inequality, where the higher the number, the greater the inequality.

Source: OECD (2011), *Divided we stand: Why inequality keeps rising*.

Figure 6: Income Inequality in Many Countries (Gini Coefficients for OECD countries, in 1985 and 2008)

However, not all countries shared this general tendency. Belgium, France,

and Hungary experience no change in income inequality across this time, while Greece and Turkey both saw decreases in income inequality, reversing the general trend (*see Figure 6*). It is important to note that, as the latest figure available is from 2008, these trends do not take into account the impact of the recent financial crisis that is likely to have influenced the current conditions (OECD, 2013).

2.4.1.3.1. Poverty

In OECD countries, the long-term trend had been for income inequalities to reduce, even while the disparities between the top and bottom remain large, this alongside them assize rises in consumption. More recently, however, changes have been occurring. On wealth, Wolff (1987, as cited in OECD, 2001), taking a long term view, observed: “Perhaps the most important finding is the gradual but persistent decline in the degree of wealth inequality among households during the 20th century”. The World Development Report (World Bank, 2000) also observed positive changes over the past century: “The 20th century saw great progress in reducing poverty and improving well-being. In the past four decades life expectancy in the developing world increased 20 years on average”. At the same time, the inequality between the rich and poor countries of the world has been widening growing inequalities over the first half of the 20th century, that quickened and then soared after 1960: “from 30 to 1 in 1960 to 60 to 1 in 1990 and 74 to 1 at present”. Within the OECD countries since the 1970s inequality trends have been disturbed. They have widened in some countries in the 1980s, continuing into the 1990s. Such trends help to define the broader environment in which students live and, more specifically, highlight that schools are particularly affected in terms of groups hardest hit (OECD, 2001). Important messages for schooling emerge from these trends. The first is that the very long-term trends towards a narrowing of resource differentials among individuals and households have not continued as before. In many countries, the gaps are now widening,

though this should be understood in the context of the overall rise in affluence, health and consumption levels. When all the caveats have been entered, however, and in the light of the well-established links between home background factors and educational attainment, schooling is confronting the situation where critical social inequalities remain. Enthusiasm for the new economy, ‘knowledge society’, etc., should not disguise this. Indeed, such developments may well be exacerbating the problems of those who are unable to participate fully in them (OECD, 2001).

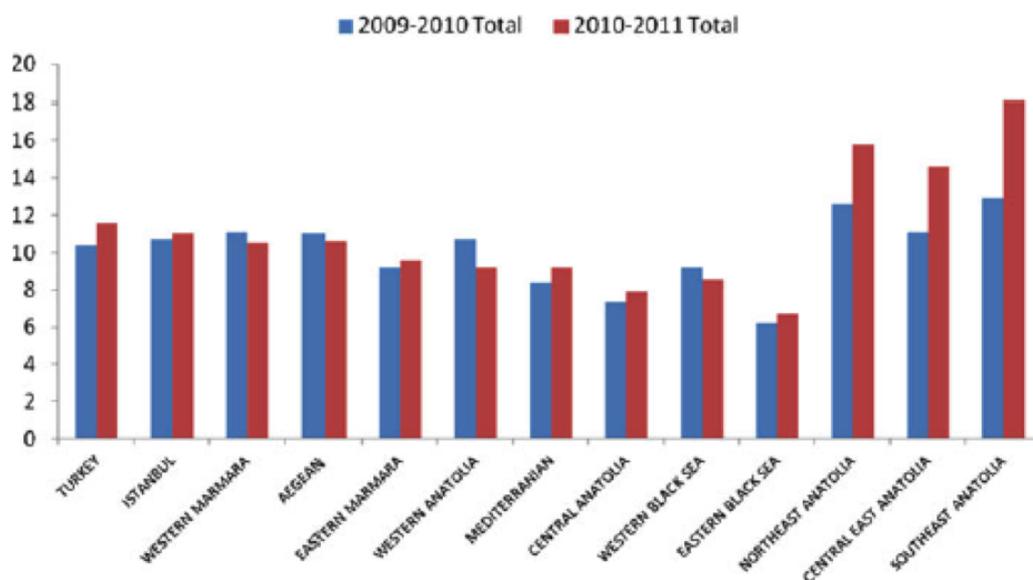
There are wide variations between countries regarding the concentration of exclusion and poverty among children (UNICEF, 2000). In some countries, these rates are very low at only 5% or even less (Nordic countries, Belgium and Luxembourg). In others, as many as a fifth to a quarter of children live in poverty (Turkey, the United Kingdom, Italy, the United States, Mexico).

In relation with these findings we can briefly mention about the Social Protection and Labor (SP+L) Strategy that is in the Emerging Issues for 2012 (World Bank, 2011). In this report there are some precautions to be taken: (1) Build prevention against income shocks, (2) Build protection from destitution and catastrophic losses in human capital and (3) Promote improved opportunities and livelihoods, notably through access to better jobs and opportunities. In addition to that education contributes to these strategies by: More education, especially for poor and disadvantaged people, supports prevention, protection, and promotion goals and skills provide competencies that respond to changing labor market demands. Moreover Social Protection and Labor (SP+L) Strategy contributes to education by: Targeted cash transfer programs have education Incentives and Labor market information improves educational choices and relevance of services.

When we consider the conditional cash transfer program, initiated by the government in collaboration with the World Bank to alleviate the economic effects of the 2001 economic crisis on households in Turkey, proved to be another widely used and effective social policy in increasing enrollment in basic education. As the World Bank financing ended, the government developed the

program, which is renamed as “conditional education assistance,” and continues to implement it through the Ministry of Family and Social Policies. These policy efforts and investments contributed to increasing enrollments, especially in basic education. However, most stakeholders focused to a large extent on ensuring school. The campaigns were successful in making children, especially girls, start school, but there was a considerable risk of dropout awaiting them later on (Aydagül, 2013).

Turkey needs to consolidate its policy efforts to ensure that everyone completes basic education. At the moment, attendance constitutes a challenge, especially after the 5th grade and in the Eastern parts of Turkey.



Source: Education Reform Initiative, 2012a

Figure 7: Non-attendance to Basic Education Across Regions

Results point to two major factors that need to be considered: poverty and the quality of education. Empirical analysis from e-school data showed that the latest economic crisis in 2008 almost doubled the non-attendance of children

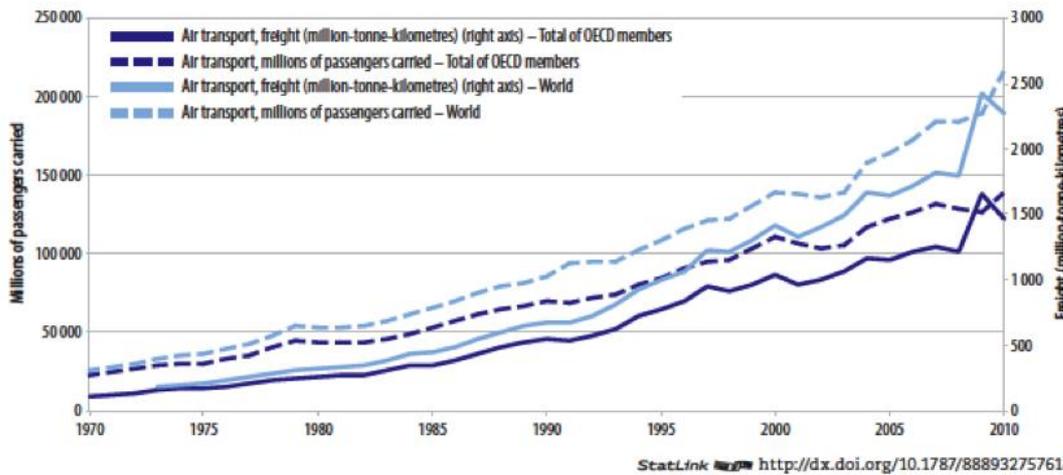
living in poverty (*see Figure 7*). The “conditional education assistance” is found to be significantly effective in increasing attendance of these children, especially in the eastern provinces (Aydagül, 2013).

2.4.1.4. Cultural Diversity

The cultural dimension is equally controversial. There are very positive developments that have quickened over the past half-century: the major growth in travel and awareness of other cultures, the explicit pursuit of multiculturalism in education and societies, including awareness of the critical role of languages. Again, however, there are countervailing trends. Many worry about the impact of globalization on language and cultural diversity.

2.4.1.4.1. Transportation

More affordable transport and advanced communication technology have created a world where far-flung places and people are accessible in a relatively short time or even instantaneously, paving the way for a global exchange of skills and goods (*see Figure 8*). For education, this is translated into an increasingly competitive global market in education, as well as into more diverse communities and classrooms (OECD, 2013).



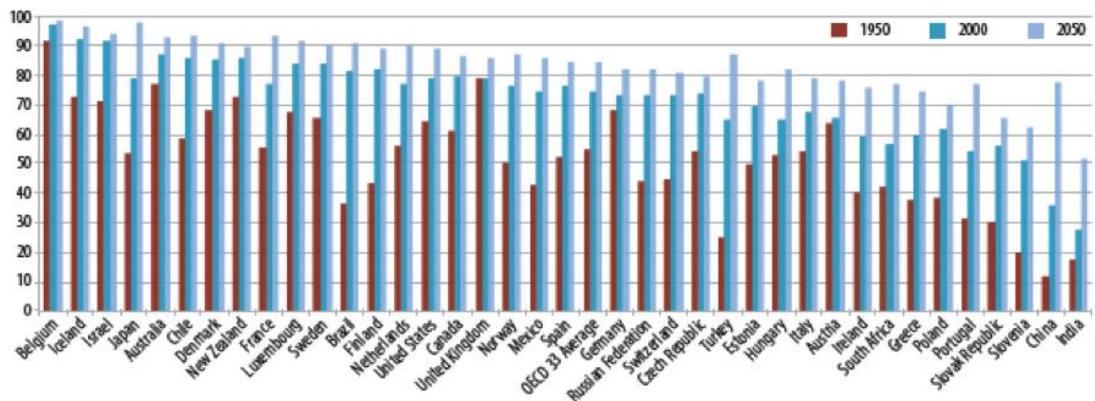
Note: Tonne-kilometres (tkm) are a unit of measurement of goods transported, which represents the transport of one tonne of goods over a distance of one kilometre. The distance to be covered is the distance actually run.

Source: World Bank (2012), *World Databank: Air Transport*.

Figure 8: Transportation (Transport of passengers (left axis) and freight (right axis) by air, total of OECD members and world, 1970-2010)

2.4.1.4.2. Urbanization

Between 1950 and 2000, the percentage of the population living in urban environments increased on average from 52% to 75% across all OECD countries. Even countries with the lowest percentage of urban dwellers in 1950 (Slovenia and Turkey) experienced substantial increases in the proportion of their population living in urban areas by 2000. This pattern is expected to continue across the OECD and BRIC countries, with a forecasted OECD average of 85% in 2050 (see Figure 9). In fact, Belgium, Iceland, and Japan are all expected to have as many as over 95% of their population living in urban areas by this time. Urbanization poses a social challenge to educators, in terms of possible alienation and loss of a sense of community.



StatLink <http://dx.doi.org/10.1787/888932757846>

Source: United Nations Population Division (2012), *World Urbanization Prospects: The 2011 Revision*.

Figure 9: Urbanization (Percentage of people living in areas classified as urban by national authorities, 1950- 2100)

2.4.1.5. Educational Globalization

National political debates are increasingly shaped by international comparisons, particularly of matters such as class sizes or student scores. Some systems have already been shaken by the so-called “TIMSS effect” after publication of comparative scores (and there may soon be similar “PISA effects” when the first results of the OECD/PISA surveys are published). Certain countries have had to dip well into the international teacher labor market in the face of shortages; as such advanced-skill markets are becoming increasingly global. In short, education is an integral element of globalization, as well as being profoundly affected by it (OECD, 2001).

In terms of educational evaluation, globalization has a great impact. When you consider the international exams (PISA, TIMMS, PEARLS) you can easily see the all participant countries trying to reach some international standards and

make reforms based on these data. Turkey is not attending TIMMS and PEARLS regularly but PISA became a seminal part of educational evaluation in Turkey. Participants contributed to interpretation of PISA results and how this knowhow influence our educational system. OECD's PISA program has been commonly used to compare education performances of participant countries. PISA tests measures and compares the skill level of 15 year old students in different countries in three categories namely science, mathematics and reading. The tests aim to measure not only the academic knowledge but also the capacity to use such knowledge in real life and their ability to solve problems in particular. In addition to this, these tests make it possible to analyze the causes of success or failure through surveys conducted with students, parents and school administration. PISA test was initially conducted in 40 countries, 30 of which are OECD members. In 2006 17 new countries were added to the program and the test was conducted in a total of 57 countries. As of 2009, 65 countries are involved in test program. Turkey participated in PISA tests in the said three years with 4855, 4942 and 4996 students, respectively (TEPAV, 2010).

Turkey has previously participated in PISA (2003, 2006, and 2009), in TIMMS (1999, 2007, 2011), and in PIRLS (2001). Thorough analysis of these assessments provides insight into how Turkey is doing in learning in a time trend and across nations. 15-year-old students in Turkey scored 464, 445, and 445 in reading, mathematics, and science tests, respectively, in PISA 2009. With these scores, an average 15-yearold student in Turkey is one full year or more (or 40 points) behind the OECD average (World Bank 2012). Among OECD countries, Turkey outperforms only Mexico and Chile, trailing the other 31 countries, including the newcomers Estonia, Israel, and Slovenia. Among all of the 65 PISA countries, Turkey ranks between 41st and 43rd. In PISA 2006, Turkey ranked between 37th and 44th among 57 countries (Education Reform Initiative 2011).

2.4.1.5.1. International Benchmarking

International benchmarking has been identified as the basis for improvement and a key way for countries to understand relative strengths and weaknesses of their education systems and identify best practices and ways forward (OECD 2006). It is a indication of international consensus (primarily by developed countries) about the necessity of assessment. Comparative interest in national examination systems dates back to the late nineteenth century (Meyer, Kamens, & Benavot 1992; McNeely & Cha 1994 as cited in OECD, 2006), while formal international testing is mostly a post-WWII project based on the availability of sophisticated testing. Although higher education does not have large international comparative tests like Trends in International Mathematics and Science Study (TIMSS) or the Program for International Student Assessment (PISA), there is a large industry that produces the SAT, ACT, GRE, and other standardized tests that is ready to enter the arena of international achievement testing if given the opportunity. Furthermore, an expanding number of donor agencies and multilateral organizations are mandating some form of learning assessment to accompany their loans (e.g., IMF and the World Bank). Agreement about key learning outcomes will legitimate international efforts to make mass education more accountable to society.

Intergovernmental organizations (IGOs) and nongovernmental organizations (NGOs) will likely facilitate the process of assessment as a demand for accountability of educational effectiveness in exchange for resources. The management perspective embedded in assessment continues to spread. Power is used to leverage this diffusion in unique ways under the contradictory forces of globalization. The strategy fits into policies and practices that are increasingly standardizing the flow of educational ideas internationally and changing fundamentally what education is and can be (Carney 2009).

We can say that International Assessments create an observation mechanism over education systems of countries. A variety of internal and external

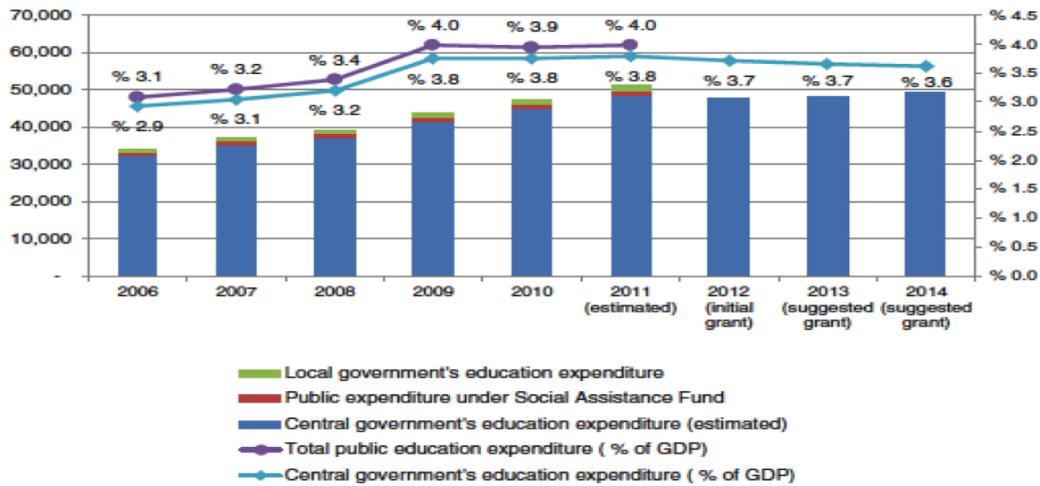
pressures play a role in the call for evidence to “prove” what students are learning as a result of their enrollment in education. For example, the public may demand an accounting for expenditure of tax dollars. Legislatures and government agencies are increasingly observing institutional practices and then becoming involved in institutional decision-making. As a result, accountability has become both a prevalent concept and a programmatic initiative (Ewell 1997, 2002). Depending on the region and degree of pressure, some institutions resort to a compliance approach in order to satisfy the demand (Ewell 2002).

In the midst of growing demands for accountability of education with regard to student learning and related expenditures, there must always be a definition of quality assurance or achievement levels. Conceptualizations that lack definition leave room for arbitrary applications of an evolving and unclear threshold of quality. Degree completion, enrollment levels, and retention rates are often seen as reliable indicators of quality (Ewell 1997). Although these indicators may be simple to measure, they are not an exact measure of educational quality. Standardized testing is used to evaluate student learning across institutional types and regions and is a traditional medium to measure the quality of education. In many developed countries, educational testing is ubiquitous. According to Koretz (2008), achievement testing is a complex enterprise that is widely misunderstood and misused, and “precisely because of the importance given to test scores in our society, those mistakes can have serious consequences”. Aside from the complexity of reliability, measurement error, and cultural bias, research shows that when someone is held accountable for test scores, they may become egregiously inflated (Koretz, 2008). Although standardized testing may be a simple method to collect data, many tests are not connected to the curricula being taught and do not measure the course or program being delivered.

2.4.1.5.2. Privatization

Within a highly centralized budgeting system, schools receive public funding and private contributions and have little autonomy over school financial management. School funding is allocated based on an increase over the previous year's school budget. With changes in student population and the need to provide more non-personnel-related resources, schools have difficulty responding to their needs, given the lack of financial autonomy and the allocation method of funding. However, parental contributions to fund supplemental equipment can be received through the school parents' association (OECD, 2013a).

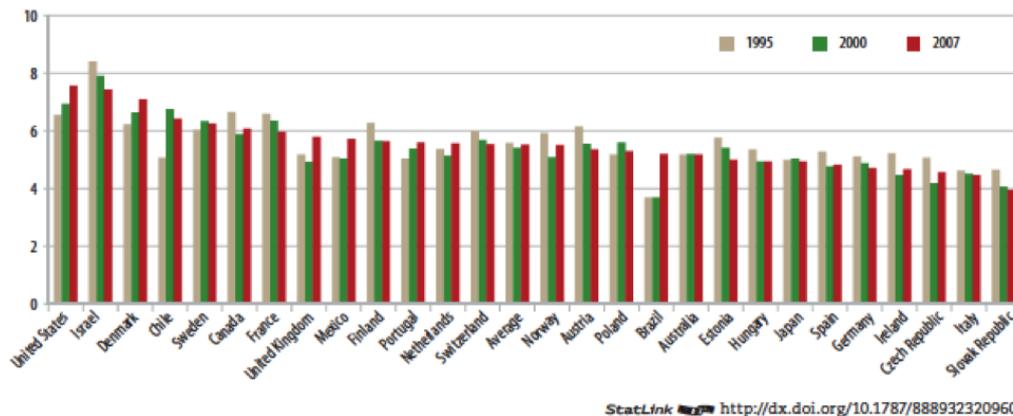
Annual expenditure per student in Turkey was less than half of the OECD average in 2010: USD 2 490 (PPPs) in pre-primary education (compared to the OECD average of USD 6 762); USD 1 860 in primary education (compared to the OECD average of USD 7 974); and USD 2 470 in upper secondary education (compared to the OECD average of USD 9 014) (OECD, 2013a). In pre-primary, primary and secondary education, the central government allocates public funding from the national budget to public institutions and private institutions (for students in special education) for operational and personnel costs, such as staff and teaching material. Education reforms are funded through the government and also through contributions from international organizations, private institutions and non-governmental organizations. Expenditure on education (primary, secondary, post-secondary, non-tertiary) was 2.5% of the GDP in 2010, lower than the OECD average of 3.9%, but it has raised by 0.7 points since 2000 (*see Figure 10*). In 2010, public expenditure on public education per student in primary education, secondary and post-secondary non-tertiary education was USD 2 008 (compared to the OECD average of USD 8 412), while for private institutions it was USD 2 413 (compared to the OECD average of USD 5 029) (OECD, 2013a). In terms of education finance, Turkey has been facing two challenges: The public expenditure on education services is lower than the average of developed countries, whereas the private expenditure is higher (Aydagül, 2013).



Source: Education Reform Initiative 2012a

Figure 10: Public Education Spending in Turkey

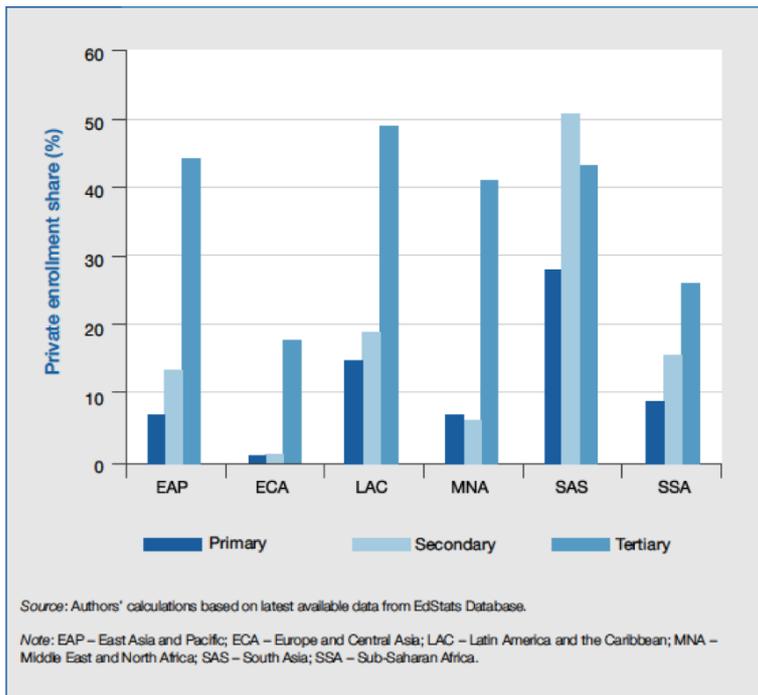
Educational expenditure as a proportion of national wealth is characterized by a notably different set of patterns. The average across the 27 countries stood at 5.5% of GDP in 2007, up from 5.4% in 2000, but slightly lower than 5.6% in 1995. Beyond the averages, 17 countries are spending less of national wealth on education in 2007 than in 1995. There are important differences between education and health expenditures, of course, especially in the extent to which educational provision is much more closely tied to specific population groups (the young) whose numbers have been falling. In fact, per student spending at the school level has gone up in the countries covered by OECD data by 43% between 1995 and 2007, as has per student spending in tertiary education in the majority of countries (*see Figure 11*). Nevertheless, the contrast between health and education suggests how intense the competition for funding, already high, may yet become (OECD, 2010).



Source: OECD (2010), *Education at a Glance 2010: OECD Indicators*.

Figure 11: Education Spending (Expenditure on educational institutions at all levels as a percentage of GDP, in 1995, 2000 and 2007)

Although it is often assumed that the private sector serves mainly students who can most easily afford to pay, private entities are providing education to even the poorest communities, especially in areas that governments do not reach. The private sector also collaborates directly with the government in different ways. In many countries, for example, governments subsidize or contract non-state organizations to provide education, or specific services within education institutions, while covering much of the cost. Lastly, the private sector is also a significant source of financing for the education sector. The IFC, for example, has been facilitating private sector education investments in emerging economies since 2001. Recognizing the value of private sector involvement does not mean abdicating government responsibility: governments typically have to provide appropriate regulation and oversight to ensure the quality and relevance of privately provided services, as well as access for disadvantaged students (World Bank, 2011).



Source: World Bank, 2011

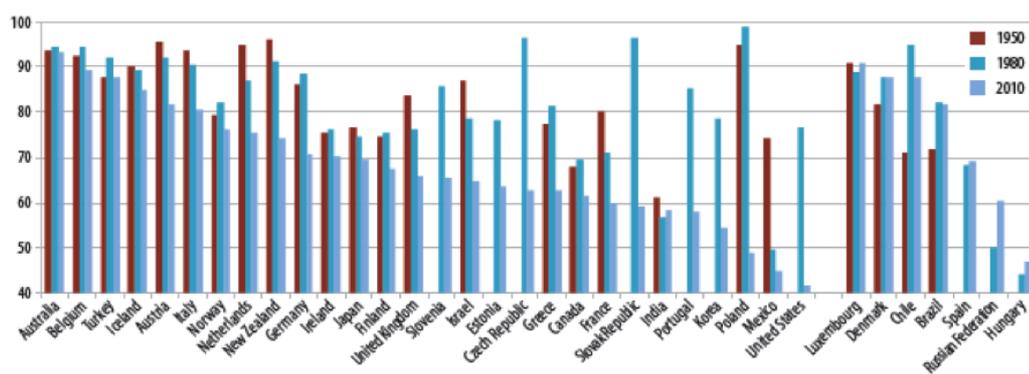
Figure 12: Enrolment to Private Schools

2.4.1.5.3. Nature of Governance

The environment of schooling embraces the broad nature of governance, which impacts on education either indirectly or directly through different forms of educational decision-making. Common challenges are now confronting governments across the different realms of public policy, as they explore new approaches to decision-making, accountability, social responsiveness, and citizenship. In some, this is taking place against a history of powerful “welfare state” arrangements that have been modified over the recent period into increasingly complex, mixed policy models. Globalization is one major factor spurring the search for new models (OECD, 2001).

Education can play a significant role in fostering awareness of democratic

principles and procedures, as well as highlighting the importance of civic and social participation in society. Civic engagement is one-way individuals can make a difference in their communities and societies. Measures of civic engagement include both political and non-political processes, such as voting, volunteering, and contributing to philanthropic initiatives. Higher levels of civic and social engagement have been linked to higher levels of trust and tolerance in communities, and are considered a fundamental aspect of a healthy democracy. However in many countries across the OECD, measures of civic participation, including voter turnout, have fallen throughout the last half-century. Researches suggests that classroom climate and confidence in school participation are positively associated with some of the knowledge, skills and behaviors that underlie civic participation (OECD, 2013).



StatLink <http://dx.doi.org/10.1787/888932758074>

Note: Voter turnout is the total number of votes cast (valid or invalid) divided by the number of people registered to vote, expressed as a percentage. Where the data for countries were not consistently available in the same years, figures from the closest year are used. The year of each data point is provided in a table in the StatLink above.

Source: International IDEA (2011), *Voter Turnout Database*.

Figure 13: Engagement to Democracy

In sum, we can say that education system is deeply influenced by globalization. In a context of growing expectations and educational needs within limited budgets, school systems are hard-pressed to meet two major aims: boost

their effectiveness and reduce social inequalities. Even if they might want to, the extent of change in the economic and social environment precludes schools from the option of simply continuing with the status quo. They must not only adapt but also lay the foundations for a future that respects a humanist understanding of social life and fundamental rights of the individual.

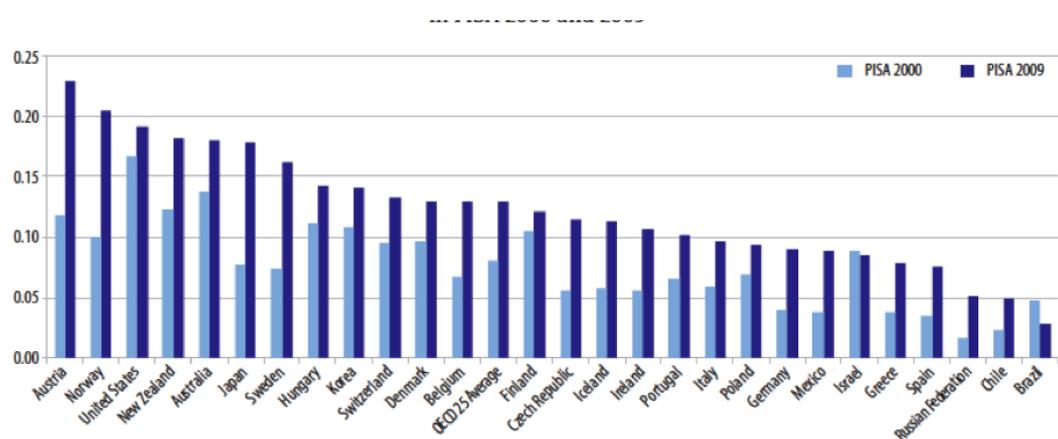
2.5. Technology

Information technology has developed very rapidly over the past 40 years, with computers becoming smaller, faster, cheaper, and more powerful. Information technology is now an integral part of our daily lives and embedded in many products. Many of us are now living in technological environments and need to adjust to the rapid pace of change. The ease and speed at which very large quantities of information can be rapidly accessed in a variety of settings is a key matter for education, as is the development of the skills necessary to use this resource effectively. While access to a computer at home and work has become almost universal in OECD countries, many questions may be raised about the use made of that technology for education, despite significant investments made by countries in order to provide access to computers and the Internet in schools (OECD, 2013).

2.5.1. ICT Usage in Schools

Access and use of computers at work is also increasing, becoming for many an indispensable part of their working day, in particular through use as a communication channel. Between 2005 and 2011 there was a clear increase in the share of workers using an Internet-connected computer. Iceland and other Nordic countries (Finland, Denmark, Norway, and Sweden) had the highest levels in

2011, while Hungary and Turkey had the lowest levels. The size of the increase is also country specific: Iceland more than doubled its share in that time period (from 46% to 98%), a far greater increase than any other country. For education, these trends indicate that computer literacy is a fundamental skill for the majority of jobs, and not just restricted to those positions commonly labeled “information intensive”. Future forms of the “digital divide” might thus center on the skills and capabilities to use information technologies effectively, and schools can play a role in equipping graduates with equal capacities in this domain (OECD, 2013).



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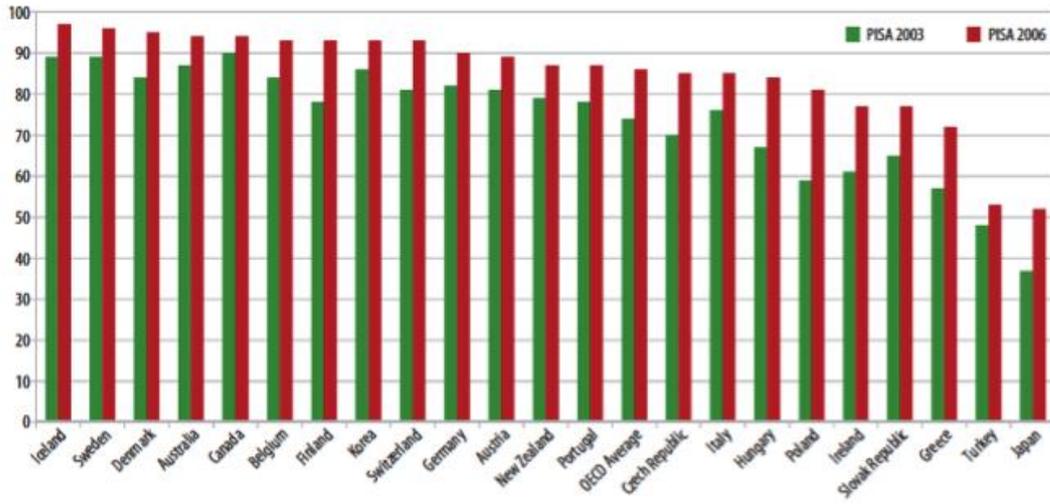
Note: PISA is the OECD's Programme for International Student Assessment, for more information, see www.oecd.org/pisa.

Source: OECD (2011), PISA 2009 Results: Students OnLine: Digital Technologies and Performance (Volume VI).

Figure 14: Computers in Schools

The availability of computers does not mean that they will be used. Rather, use is also dependent on the motivations and capacities of potential users, and the extent to which computers are present in both daily life and classroom practices. The data presented here indicate that very high percentages of young people have the motivation and capacity to use computers; the large majority of 15-year-olds frequently use computers at home. Use of computers in school is more limited, suggesting both that critical thresholds of equipment have not been reached and

that there is a lack of thoroughgoing integration of computers into the learning process. Regardless of levels of either access or use, questions remain over the value gained from ICT for student learning (OECD, 2010).



StatLink <http://dx.doi.org/10.1787/888932321549>

Note: The number of students reporting frequent use includes all those who responded with either “almost every day” or “a few times a week”.

Source: OECD (2010), *Are the New Millennium Learners Making the Grade? Technology Use and Educational Performance in PISA 2006*, Educational Research and Innovation.

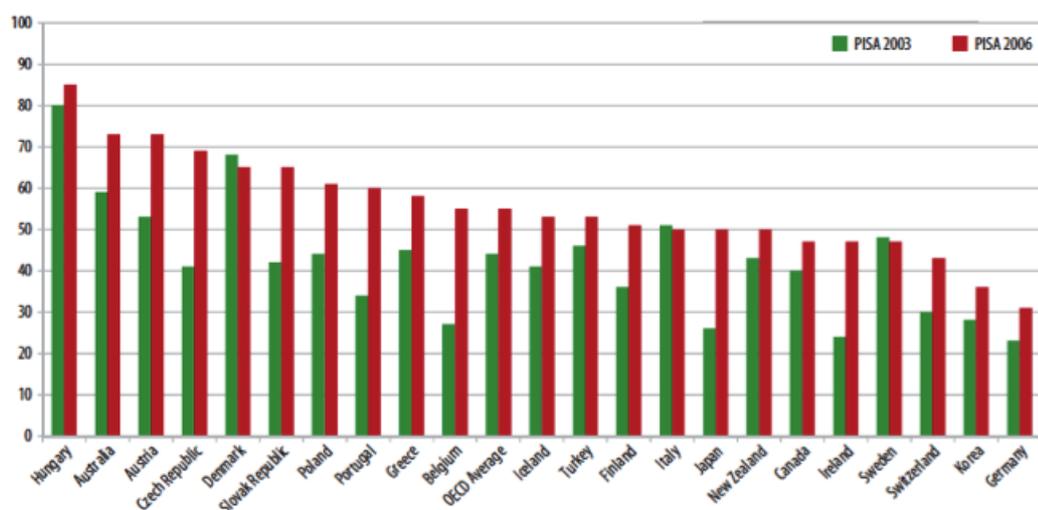
Figure 15: Computer Use at Home

Responses to the PISA survey show that frequent use of computers at home (every day or a few times a week) is now almost universal among 15-year-olds in OECD countries. Eighty percent or more of 15-year-old students report frequently using computers at home in 17 of the 22 countries shown, and in ten of these countries, the figure is over 90%. On the opposite end of the scale, in Japan and Turkey only around half report frequent computer use at home (OECD, 2010).

In contrast, the proportion of 15-year-olds reporting frequent use of computers at school is much lower. In 2006, just over half (55%) of students on average reported this, up from 44% in 2003. Frequent use of computers in schools

rose in all the countries shown, except Denmark, Italy and Sweden. In 2006, in only three countries (Australia, Austria and Hungary) do 70% or more of the students report that they use a computer frequently in school (OECD, 2010).

‘Access’ is not the same as ‘use’, and neither is the same as productive use. Almost universal access and use of computers at home by young people in OECD countries suggests that the more pertinent digital divide is now between those who can take advantage of the opportunities that computers offer and those who cannot, with those who already possess high levels of human capital in the best position to increase that capital using ICT. This also suggests that schools remain important in addressing the inequalities reinforced by such digital divides (OECD, 2010).



StatLink <http://dx.doi.org/10.1787/888932321568>

Note: The number of students reporting frequent use includes all those who responded with either “almost every day” or “a few times a week”.

Source: OECD (2010), *Are the New Millennium Learners Making the Grade? Technology Use and Educational Performance in PISA 2006*, Educational Research and Innovation.

Figure 16: Computer Use at School

2.5.2 Recent Technologies for Educational Purposes

There are currently seven categories of technologies, tools, and strategies for their use that the NMC monitors continuously (Johnson, Adams Becker, Estrada, Freeman, 2014). These are not a closed set, but rather are intended to provide a way to illustrate and organize emerging technologies into pathways of development that are or may be relevant to learning and creative inquiry. These six technologies highlighted by the 2014 Horizon Project K-12 Expert Panel, who agree that they have the potential to foster real changes in education, particularly in the development of progressive pedagogies and learning strategies; the organization of teachers' work; and the arrangement and delivery of content. Collectively, the categories serve as lenses for thinking about innovation; each is defined below (Johnson et al, 2014).

2.5.2.1. Consumer Technologies

Consumer technologies are tools created for recreational and professional purposes but they may serve well as learning aids and be quite adaptable for use in schools. These technologies easily adapt in to schools because people are using them at home or in other settings. 3D Video, Electronic Publishing, Mobile Apps, Quantified Self, Tablet Computing, Telepresence and Wearable Technology are the most common examples of these kind of technologies.

Electronic Publishing: E-books continue to generate strong interest in the consumer sector and are available on campuses as well. Modern electronic readers support note-taking and research activities, and are beginning to augment these basic functions with new capabilities — from immersive experiences to support

for social interaction — that are changing our perception towards reading (Johnson et al, 2011).

Mobile Apps: Mobile learning is becoming an integral part of K-12 education, as it is increasingly common for students to own and use portable devices. With easy to use, touchscreen interfaces, even the youngest children can easily pick up a tablet or smartphone and interact with it almost immediately. Mobile devices are gateways to endless learning, collaboration, and productivity fostered by the Internet. One of the fastest growing facets of mobiles are mobile apps. Scores of education companies and websites are creating responsive programs, platforms, and curricula for mobile devices. Moreover, app development and programming is being taught to K-12 students in schools and after-school programs (Johnson, Adams Becker, Cummins, Estrada, Freeman & Ludgate, 2013).

Tablet Computing: Because of their portability, large display, and touchscreen, tablets are ideal devices for one-to one deployment. A number of schools are using the devices to support and enhance inquiry-based learning, challenge-based learning, and other forms of active learning, and recent research indicates that tablets, because they are designed to easily share their screens, foster key 21st Century Skills in students, including creativity, innovation, communication, and collaboration. As a result, many schools are choosing tablets as one-to-one devices. Tablet computing presents new opportunities to enhance learning experiences in ways simply not possible with mobile phones, laptops, or desktop computers, and is especially suited for one-to-one learning in the K-12 environment. Because tablets are able to tap into all the advantages that mobile apps bring to smaller devices but in a larger format, schools are seeing them not just as affordable solutions for one-to- one learning, but also as feature-rich tools for all sorts of assignments as well, often replacing more expensive equipment (Johnson et al, 2012).

Wearable Technology: Wearable technology is not a new category; one of the most popular early incarnations of the technology was HP's calculator watch, which was introduced in the 1980s. Since then, the field has advanced significantly, but the overarching theme behind the technology remains the same. Portable, lightweight, and often taking the place of an accessory that the user already has, wearable tools are meant to go anywhere. Effective wearable devices become an extension of the person wearing them, allowing them to comfortably engage in everyday activities, such as checking and responding to emails and other tasks that help teachers and students to stay productive on-the-go (Johnson et al, 2014).

The latest turn in wearable technology is a host of devices that are linked to the quantified self — the phenomenon of people tracking data that is relevant to making improvements to their health and fitness by monitoring their activities. Horizon report 2014 mentioned about the two possible implication of wearable technology. Such as, Fitbit, for example, is a small wristband that tracks wearers' daily activities, including sleep patterns, steps taken, and calories burned. Through wireless and automatic syncing between the Fitbit and smartphones, tablets, and laptops, users can see real-time progress across their devices. The Jawbone UP wristband employs similar functionalities, allowing wearers to track sleep, movement, and dietary information that is automatically populated in the accompanying mobile UP app.

The experience can easily turn into a social one as people share their accomplishments with other users and team up to track and achieve specific goals. It is easy to envision applications of these wearable apps in K-12 physical education classes to teach students about nutrition and exercise and to help them establish healthy habits early on. In addition to that another compelling uses of wearable technology in K-12 is their potential to enhance fieldtrips and fieldwork. For instance, wearable cameras such as the Kickstarter-funded, GPS-enabled Memoto can instantly capture hundreds of photographs or data about a user's

surroundings on a class trip to a museum or an offsite geology dig that can be later accessed via email or other online application.

The Contour Video Camera is another such device, currently favored by extreme athletes, that records and streams HD video. There is an increasing demand from users for all of their special moments to be seamlessly captured, but it is becoming less desirable to have to carry cumbersome devices. As technologies are continuously designed to be smaller and more mobile, wearable devices are a natural progression in the evolution of technology.

2.5.2.2. Digital strategies

Digital strategies are ways of using devices and software to enrich teaching and learning, whether inside or outside of the classroom. Effective digital strategies can be used in both formal and informal learning; what makes them interesting is that they transcend conventional ideas to create something that feels new, meaningful, and 21st century. Bring Your Own Device (BYOD), Flipped Classroom, Games and Gamification, Location Intelligence, Makerspace and Preservation/Conservation Technologies are the most common usage of digital strategies.

Bring Your Own Device (BYOD): BYOD, also referred to as BYOT (Bring Your Own Technology), refers to the practice of people bringing their own laptops, tablets, smartphones, or other mobile devices with them to the learning or work environment. In schools many students are entering the classroom with their own devices, which they use to connect to the school's network. Adoption of BYOD policy into the corporate sphere has provided a model for educational contexts, and the practice is gaining acceptance in schools all over the world (Johnson, Adams Becker, Estrada & Freeman, 2014).

Game-based learning: Game-based learning has grown in recent years as research continues to demonstrate its effectiveness for learning for students of all ages. Gaming is an expansive category, ranging from simple paper-and-pencil games such as word searches all the way up to complex, massively multiplayer online (MMO) and role-playing games. Educational games can be broadly grouped into three categories: games that are not digital; games that are digital, but that are not collaborative; and collaborative digital games. The first category includes many games already common in classrooms as supplemental learning tools. Digital games include games designed for computers, for console systems like the Nintendo Wii, and online games accessed either through a special game client (like IBM's Power Up) or through a web interface (like Whyville) (Johnson et al, 2011).

Research into games for educational purposes reveals some interesting trends. Early studies of consumer games helped to identify the aspects of games that make them especially engaging and appealing to players of various ages and of both genders: the feeling of working toward a goal; the possibility of attaining spectacular successes; the ability to problem-solve, collaborate with others, and socialize; an interesting story line; and other characteristics. In the second direction, gaming related specifically to course content helps student gain a fresh perspective on material and can potentially engage them in that content in more complex and nuanced ways. Alternate reality games (ARGs), in which players find clues and solve puzzles in experiences that blur the boundary between the game and real life, offer a clear example in which course content and game play can overlap. Recent examples of large-scale ARGs include the educational games World Without Oil, a collaborative and social imagining of the first 32 weeks of a global oil crisis, and Superstruct, in which players imagined themselves 10 years in the future, in a world facing daunting environmental, political, and health challenges. The Tower of Babel, an ARG designed by the European ARGuing Project, was used in schools as well as by learners of all ages for learning languages other than their own (Johnson et al, 2011).

2.5.2.3. Enabling Technologies

Enabling technologies are those technologies that have the potential to transform what we expect of our devices and tools. The link to learning in this category is less easy to make, but this group of technologies is where substantive technological innovation begins to be visible. Enabling technologies expand the reach of our tools, make them more capable and useful, and often easier to use as well. Affective Computing, Cellular Networks, Electro vibration, Flexible Displays, Geolocation, Location-Based Services, Machine Learning, Mobile Broadband, Natural User Interfaces, Near Field Communication, Next-Generation Batteries, Open Hardware, Speech-to-Speech Translation, Statistical Machine Translation, Virtual Assistants and Wireless Power are the examples of enabling technology.

Natural user interfaces: Natural user interfaces allow computers to respond to gestures, motions of the body, facial expressions, voice, sound, and other environmental cues, and are replacing the keyboard and mouse as the standard for computer/human interaction. The various technologies that enable natural user interfaces are making interactions with computational devices far more intuitive, and often so simple that no instructions are even needed to use them. The device teaches you as you interact with it. From the touchscreens on smartphones and tablets, to the gesture and voice interactions built into the latest gaming systems (Xbox Kinect and Nintendo Wii, for example), to capable virtual assistants like Siri on the iPhone, natural user interfaces enable users to learn by doing and seamlessly convert thought to action. Large multi-touch displays support collaborative work, allowing multiple users to interact with content simultaneously. As an enabling or assistive technology, however, natural user interfaces are already having profound implications for special needs and disabled individuals. For example, devices with gesture control are already helping blind, dyslexic, or otherwise disabled students, reducing their dependence on keyboards.

Natural user interfaces are changing the ways that we interact with computers, both physically and mechanically. As such, it is at once transformative and disruptive. Researchers and developers are gaining a sense of the cognitive and cultural dimensions of natural user interfaces, and the full realization of the potential of natural user interfaces within K-12 will require intensive interdisciplinary collaborations and innovative thinking about the very nature of teaching, learning, and communicating (Johnson et al, 2013).

2.5.2.4 Internet Technologies

Internet technologies include techniques and essential infrastructure that help to make the technologies underlying how we interact with the network more transparent, less obtrusive, and easier to use. Cloud Computing, The Internet of Things, Real-Time Translation, Semantic Applications, Single Sign-On and Syndication Tools are examples of internet technologies.

Cloud Computing: Over the past few years, cloud computing has been firmly established as an efficient way for schools to protect data, develop applications, deliver software and online platforms, and to collaborate. Cloud-based services provide a range of solutions that address a wide variety of needs related to infrastructure, software, and security. By means of virtualization, cloud computing providers can deliver fully-enabled virtual computing environments of almost any scale that can be accessed from any connected device, seamlessly and on demand (Johnson et al, 2013).

Cloud services are grouped into three categories: 1) infrastructure-as-a-service, commonly referred to as virtualization — virtual machines, bandwidth, and storage, all scalable as needed; 2) platform-as-a-service (PaaS), the environment for developing and delivering applications; and 3) software-as-a-service (SaaS), software designed to meet specific needs of an organization. As more individuals use cloud-based sharing services such as Dropbox and Google

Drive in their personal lives, cloud computing has become widely recognized as a means of improving productivity and expanding collaboration in education, while alleviating the financial burdens imposed by server-based infrastructures. Cloud services specifically cut the cost and time required for server maintenance, and offer support for new tools that foster best computing practices for easy sharing and mobility (Johnson et al, 2013).

According to CDW-G's 2013 State of the Cloud Report, 42% of K-12 schools and organizations surveyed are currently implementing some form of cloud computing solution; the top uses are for storage, conferencing and collaboration, and for office suite management. Cloud-based offerings such as email, video and other hosting services; subscription-based software tools; and a wide choice of collaborative applications take the pressure off of schools to continually update their machines and software. One of the most common uses of cloud computing technology in the classroom over the past couple years has been the integration of cloud-based tools such as Google Apps into the K-12 curriculum. Web-based applications work in any browser and offer a deviceagnostic place for project materials, submissions, and assignments. Today's cloud infrastructure includes a wide array of tools and services that make it easy for anyone to share media and materials.

2.5.2.5 Learning Technologies

Learning technologies include both tools and resources developed expressly for the education sector, as well as pathways of development that may include tools adapted from other purposes that are matched with strategies to make them useful for learning. These include technologies that are changing the landscape of learning, whether formal or informal, by making it more accessible and personalized. Badges/Microcredit, Learning Analytics, Massive Open Online

Courses, Mobile Learning, Online Learning, Open Content, Open Licensing and Virtual and Remote Laboratories are the examples of learning technologies.

Learning Analytics: Learning analytics refers to the interpretation of a wide range of data produced by and gathered on behalf of students in order to assess academic progress, predict future performance, and spot potential issues. Data are collected from explicit student actions, such as completing assignments and taking exams, and from tacit actions, including online social interactions, extracurricular activities, posts on discussion forums, and other activities that are not directly assessed as part of the student's educational progress. Analysis models that process and display the data assist faculty members and school personnel in interpretation. The goal of learning analytics is to enable teachers and schools to tailor educational opportunities to each student's level of need and ability. At its heart, learning analytics is about analyzing a wealth of information about students in a way that would allow schools to take action (Johnson et al, 2011).

Virtual And Remote Laboratories: Virtual and remote laboratories are not new technologies, though they have become the subject of many important discussions about improving STEM education — especially in schools that cannot afford expensive technology and equipment. While virtual and remote labs are often spoken of together as they both address the challenge of increasing access to authentic science, they are different in significant ways. Remote laboratories enable users to conduct experiments and participate in activities via the Internet using remotely controlled but real laboratory equipment. Virtual laboratories are interactive online environments for performing experiments with simulated equipment. Both, however, offer the promise of authentic laboratory experiences regardless of the locale of the user (Johnson et all, 2013).

In remote labs, the apparatuses can be monitored throughout the experiment via webcam, microphone, and other sensors. The equipment usually allows for self-cleaning when a user chooses to reset the lab. However, because there are genuine tools at work, many remote labs restrict access to one user or a

group of users at a time. Virtual laboratories mostly enable any number of users to conduct experiments simultaneously. In both cases, students are still accountable for data collection and analysis, though some virtual labs have built-in tools to aid the lab write-up process (Johnson et al, 2013).

2.2.2.6. Social Media Technologies

Social media technologies could have been subsumed under the consumer technology category, but they have become so ever-present and so widely used in every part of society that they have been elevated to their own category. As well established as social media is, it continues to evolve at a rapid pace, with new ideas, tools, and developments coming online constantly. Collaborative Environments, Collective Intelligence, Crowdfunding, Crowdsourcing, Digital Identity, Social Networks and Tacit Intelligence are examples of social media technologies.

2.2.2.7. Visualization Technologies

Visualization technologies run the gamut from simple info graphics to complex forms of visual data analysis. What they have in common is that they tap the brain's inherent ability to rapidly process visual information, identify patterns, and sense order in complex situations. These technologies are a growing cluster of tools and processes for mining large data sets, exploring dynamic processes, and generally making the complex simple. 3D Printing/Rapid Prototyping, Augmented Reality, Information Visualization, Visual Data Analysis, Volumetric and Holographic Displays (z-space) are examples of visualization technologies.

3D Printing: 3D printing provides a more accessible, less expensive, desktop alternative to industrial forms of rapid prototyping. Many of the discussions surrounding 3D printers stem from the Maker culture, an enthused

community of designers, programmers, and others that brings a do-it-yourself approach to science and engineering. One of the most significant aspects of 3D printing for teaching and learning is that it enables more authentic exploration of objects that may not be readily available to schools. Although 3D printing is four to five years away from widespread adoption in K-12 education, it is easy to pinpoint the practical applications that will take hold.

Augmented reality: Augmented reality refers to the layering of information over a view or representation of the normal world, offering users the ability to access place-based information in ways that are compellingly intuitive. Augmented reality brings a significant potential to supplement information delivered via computers, mobile devices, video, and even the printed book. Much simpler to create and use now than in the past, augmented reality feels at once fresh and new, yet an easy extension of existing expectations and practices (Johnson et al, 2011).

In a broader context of education, augmented reality is appealing because it aligns with situated learning. Students find connections between their lives and their education through the addition of a contextual layer. The ability to transfer learning from one context to another is a significant skill, one that AR can facilitate in its overt use of context and layering. Finally, AR that relies on mobile devices leverages an increasingly ubiquitous tool, not for social interactions but for learning, blurring the boundaries between formal and informal learning, which can in turn contribute to the evolution of a learning ecology that transcends educational institutions. Indeed, the potential for just-in-time learning and exploration, without special goggles or other equipment, is a deeply compelling aspect of this technology (Johnson et al, 2011).

2.5.3 Personalized Learning

Personalized learning includes a wide variety of approaches to support self-directed and group-based learning that can be designed around each learner's goals. Solving this challenge means incorporating concepts such as personalized learning environments and networks, adaptive learning tools, and more into school activities. Using a growing set of free and simple resources, such as a collection of apps on a tablet, it is already quite easy to support one's ongoing social and professional learning and other activities with a collection of resources and tools that is always on hand. There are two paths of development for personalized learning: the first is organized by and for the learner, which includes apps, social media, and related software. School goals and interests are driving the other path, primarily in the form of adaptive learning. In this pathway, adaptive learning is enabled by intervention-focused machine intelligence that interprets data about how a student is learning and responds by changing the learning environment based on their needs. While the concept of personalized learning is fairly fluid, it is becoming clearer that it is individualized by design, different from person to person, and built around a vision of life-long learning.

The goal of integrating more personalized learning into schools is to enable students to learn with their own strategy and pace, and demonstrate their knowledge in a manner that is uniquely their own. Free or nearly free cloud computing tools, for example, allow users to create personalized learning environments, and easily store the content they want, share their content with others, gather new and relevant items, write personal commentary, complete assignments, and more. YouTube, iTunes U, Facebook, and other social media provide students with outlets to discover new content, disseminate their own, and develop digital portfolios they can carry with them and build upon throughout their schooling. At Point England School, for instance, students use Blogspot blogs as online portfolios to record their learning experiences and outcomes (Johnson et al, 2013).

This challenge is considered solvable because the underlying technologies needed to support personalized learning are readily available now. For example, a student's smartphone or tablet and their collection of apps directly represents their assortment of interests. With hundreds of thousands of apps available in multiple marketplaces, it is easy to see how no two people are likely to share the exact same set. Everyone has distinctive preferences, and approaches learning and exploration differently; this is the basic premise of personalized learning. In many ways, Finland is perceived as a model for this trend, which is exemplified at Peltosaari School where ActiveInspire software and mobile devices are used to promote writing, photography, video and audio production, and other unique demonstrations of student knowledge acquisition. Though the term "personalized learning" may conjure images of students working alone, the school encourages collaborative activities in which students share ideas and create materials together, based on their learning similarities and differences (Johnson et al, 2013).

Personalized learning is, at its core, a way to allow students to pursue their education according to their individual needs. Some students, for example, may benefit from curating their own resource collections. The European Union's Responsive Open Learning Environments (ROLE) project took this approach in an effort to study the impact of student-created environments for personalized learning. Resources including YouTube, Wikipedia, and Flickr were used to support teachers and students in developing open-source personal learning environments for their students. Over the four years of the project, ROLE developed, tested, and deployed an operating learning environment and a collection of ROLE-designed widgets (Johnson et al, 2013).

Adaptive learning software in the form of online learning platforms is an emerging area within the personalized learning space, but one that shows the potential of guiding students' individual progress through real-time formative assessment. These tools are envisioned as providing students and educators with

tailored information about how lessons are progressing, with adjustments made on the fly as needed. Through predictive analytics and a recommendations engine, the application evaluates student proficiencies, factors in teacher- and student-indicated goals, and maps the relationships between learners and the content in order to determine the most appropriate pathways and priorities for each student.

There is already considerable consensus among government, policymakers, and school leaders of the importance of identifying methods of personalization that can be integrated into schools at scale. A 2013 report from the American Institute of Research, *Are Personalized Learning Environments the Next Wave of K–12 Education Reform?*, examines the U.S. Department of Education’s Race to the Top-District (RTT-D) grant program, in which personalized learning was a major focus. Through the RTT-D program, these institutions are developing blended learning environments, individualized college and career readiness plans, and competency-based models, which are all seen by the government as key to implementing effective personalized learning. As an example, grantee Carson City School District in Nevada is facilitating more individualized post-graduation preparation through career clusters that enable students to select and learn more deeply about the areas they are interested in, including business, agriculture, and information technology (Johnson et al, 2013).

2.5.4 Hybrid Learning Designs

As teachers and students alike become more familiar with and adept at using the Internet, classroom-based learning increasingly includes online learning components, hybrid learning strategies, and an increased focus on collaboration within and outside the classroom. Schools that are making use of hybrid learning models are finding that using both the physical and the virtual learning environments to their highest potentials allows teachers to further personalize the learning experience, engage students in a broader variety of ways, and even

extend the learning day. Hybrid models, when designed and implemented effectively, enable students to use the school day for group work and project-based activities, while using the network to access readings, videos, and other learning materials on their own time, leveraging the best of both environments.

A renewed interest in online learning has taken place over the past few years, fueled in large part by press attention to massive open online courses (MOOCs), but also by increased access to the Internet and broadband services, and a growing recognition that online learning can indeed add value to almost any learning environment. Hybrid learning models, which blend the best of classroom instruction with the best of web-based delivery, place a strong emphasis on using school time for peer-to-peer collaboration and teacher-student interaction, while online environments are used for independent learning. Blended learning is often used as a synonym for hybrid learning, although several authors would distinguish between the two. For our purposes, we are using the term hybrid learning to encompass both perspectives. These hybrid models may require students to watch videos at home through platforms such as Khan Academy or engage with other web-based content, while class time is repurposed as an opportunity for teachers to mentor individuals and groups, and for students to problem solve and work together with classmates. The distinction is in the degree to which the Internet components are woven into the curricular design (Johnson et al, 2013).

The International Association for K-12 Online Learning's (iNACOL) latest survey of global online and blended learning initiatives shows the widespread growth of this digital strategy. The report concluded that elementary and secondary-level students living in North America, Western Europe, Asia, and Oceania have the most access to blended and online learning choices, and of the 23 reporting countries, only the Philippines had indicated no government funding for these types of initiatives. While not part of national agendas yet, 24 states in the U.S. are experimenting with blended schools. Although primarily an online instruction provider, the Florida Virtual School is partnering with the Christa

McAuliffe Middle School to support a fresh blended learning approach. In this project, “Christa’s Launch Pad,” students sit on yoga balls and video game rockers while working through online United States history modules with the assistance of two classroom teachers (Johnson et al, 2013).

Forecasting the trajectory of blended learning, the Clayton Christensen Institute has published several papers describing the rise of blended learning in K-12 education (Johnson et al, 2013). Their most recent paper, *Is Blended Learning Disruptive? An Introduction of the Theory of Hybrids*, explores blended learning through the lens of disruptive innovation theory to help anticipate the major shifts that traditional K-12 education will face in the coming years. Through this theoretical lens, hybrid learning is seen as a sustaining innovation that provides the best of online learning and traditional classroom instruction, but the researchers can see a time when value propositions like individualization, universal access and equity, and productivity become so effective that more disruptive models of blended learning will prevail over the traditional K-12 education experience.

By categorizing hybrid learning as either sustaining or disrupting the traditional classroom, the Christensen Institute report provides school leaders with an underlying structure to consider as they gauge the effects of their efforts. Education leaders with limited budgetary and architectural options, for example, can bolster the traditional classroom model for years to come by incorporating hybrid learning designs such as the rotational model where students alternate between one-on-one time with the teacher, individual and group work, and computer aided instruction (Johnson et al, 2013).

In practice, hybrid learning is seen as a way to level the playing field for rural schools by providing more access to a variety of high-quality courses. The report *Transforming K-12 Rural Education through Blended Learning: Barriers and Promising Practices* surveyed rural teachers that took part in Idaho Learning Academy’s professional development. Teachers indicated that incorporating

hybrid learning improved their ability to be innovative, monitor student learning, and enable greater one-on-one instruction. By allowing self-paced learning, teachers also reported positive correlations with quality of student work, interest level of students during instruction, and student perseverance. Additionally, teachers cautioned that hybrid learning projects take time and they recommended that teachers seek formal and informal training when possible (Johnson et al, 2013).

To gain a global competitive advantage in mathematics, departments and ministries of education are examining the implications of hybrid learning for policy and practice. The rotational design model was the focus of a U.S. Department of Education-funded study by the Rand Corporation. Using computer-based instruction called Cognitive Tutor Algebra I combined with textbook-based activities, students experienced an eight-percentile improvement over the control group in math scores in the second year of implementation. While the study showed the efficacy of hybrid learning in improving math performance, more studies are needed to identify which specific components are most effective in order to drive policy (Johnson et al, 2013).

2.5.4.1. Open Educational Sources

Open content is the current form of a movement that began a decade ago, when universities such as MIT began to make their course content freely available. Twelve years later, schools are sharing a significant amount of curricula, resources, and learning materials. While work in universities paved the way for open content to find traction in the classroom, its recent entrance into the K-12 sector is partly rooted in the financial benefits. Open textbooks have proven to be worthy competitors to standardized textbooks, forcing manufacturers to offer digital, customizable alternatives.

This philosophy of open content and open education acknowledges that information is not the only useful and distributable commodity among educators. Insight and experience can also be collected and shared. As open content prompts dialog among educators and administrators in K-12 schools, there is much discussion about what is required to scale open resources. Typical business models for open content developers reflect those of non-profit organizations, foundations, or other grant or donation dependent institutions, though there are other paths to sustainability. Some open-content providers have explored models that offer opportunities for sponsorship, membership fees, and customer or premium services. Seeking partnerships with textbook publishers is also proving to be a sustainable avenue for content producers (Johnson et al, 2013).

Open content has achieved global recognition as an effective means of distributing high-quality, accessible educational materials to schools in both developed and developing countries. In many parts of the world, national and state governments have allotted funds to support open content initiatives in education. There is a growing variety of open content from K-12 organizations and schools, and in many parts of the world, open content represents a profound shift in the way students study and learn. Far more than just a collection of free online course materials, the open content movement is increasingly a response to the rising costs of education, the desire to provide access to learning in areas where such access is difficult, and an expression of student choice about when and how to learn (Johnson et al, 2013).

Open textbooks have proven to be worthy competitors to standardized textbooks, forcing manufacturers to offer digital, customizable alternatives. An added result is the surge of educational enterprises that are providing easy to use platforms for the creation of open source texts and curricula centered on open resources. Apple's iTunes U, for example, enables educators from every sector to build courses online using the iTunes U Course Manager, which offers access to over 500,000 free public resources (go.nmc.org/itunesu). Not-for-profit repositories such as Wikibooks (go.nmc.org/wikibooks) are building ever growing

platforms that feature free, open source textbooks that are easy to find (Johnson et al, 2013).

2.5.4.2. Flipped Classroom

The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. The notion of a flipped classroom draws on such concepts as active learning, student engagement, hybrid course design, and course podcasting. The value of a flipped class is in the repurposing of class time into a workshop where students can inquire about lecture content, test their skills in applying knowledge, and interact with one another in hands-on activities. During class sessions, instructors function as coaches or advisors, encouraging students in individual inquiry and collaborative effort. There is no single model for the flipped classroom—the term is widely used to describe almost any class structure that provides prerecorded lectures followed by in-class implementations.

As the flipped class becomes more popular, new tools may emerge to support the out-of-class portion of the curriculum. In particular, the ongoing development of powerful mobile devices will put a wider range of rich, educational resources into the hands of students, at times and places that are most convenient for them. Greater numbers of courses will likely employ elements of the flipped classroom, supplementing traditional out-of-class work with video presentations and supporting project-based and lab- style efforts during regular class times.

CHAPTER III

METHOD

This chapter describes the research design, data sources, data collection instruments and procedures, data analysis procedures and limitations of the study. In the process of decision making for the method and the reasons will be discussed under these headings.

3.1. Design of the Study

*“The best way to predict future
is to create it”*

Peter Drucker

The purpose of the study was to explore possible schools of the future in the context of Turkey. There are two research questions formulated ‘In what ways will schools be evolving in the future?’ and ‘What are the possible scenarios for the future K-8 schools in Turkey under consideration of globalization and technology?’ This investigation conducted with qualitative methods.

For the reason of aiming a detailed picture of schools of the future concept researcher divided research process in to three phases. In these phases process focus on one particular aspect of major research question. For instance in Phase I researcher focused to find data for *What are the perceptions of practitioners’ in the field of education on schools of the future?* In Phase 2 researcher searched for *the major trends that shaping the future K-8 schools in Turkey*. Finally in Phase 3 seek for *the possible scenarios for the future K-8 schools*. Research Question of

Phases are depicted in Figure (17).

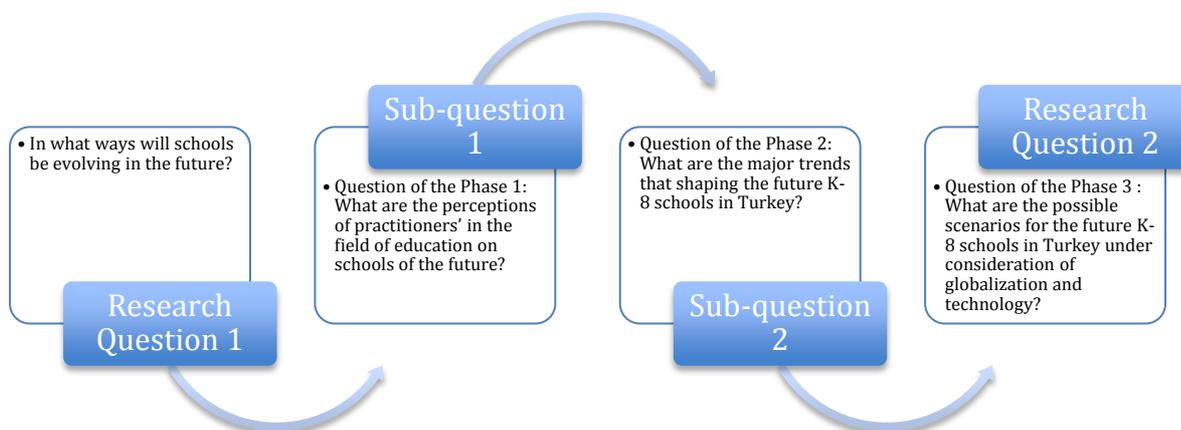


Figure 17: Research Questions of Phases

In all these phases researcher mostly deals with social settings where participants are involved and collected some documents to verify her findings. The researcher was open to whatever comes as finding and determined the process of research after retrieving findings from initial search conducted. There are no predetermined assumptions or fixed belief before starting the inquiry. This study is not aimed to verify a previous study or a current idea on schools of the future but to explore anything leading to new horizon.

In the light of above-mentioned intensions qualitative research design support this inquiry in many ways. Especially this research stems from that is referred to as naturalistic inquiry in social research. Guba (1981) states the term *naturalistic* as a paradigm rather than a method. It slightly different from rationalistic paradigm in terms of conceptions of the nature of reality, the nature of the inquirer, the nature of truth statements, quality criterion, source of theory and instruments. In rationalistic inquiry there is a single reality that is manageable

enough to be studied by separating it into variables, that the inquirer and the object of the study can exist independent from each other, and that context-free generalizations are possible. Rationalistic paradigm also follows deductive reasoning to test a priori hypotheses that set out by researcher to test of a theory. On the other hand, naturalistic inquiry is based on the assumptions that there are multiple realities that one part cannot be separated from the others to study. Furthermore the inquirer and participant are interdependent and influence each other, and context-free generalizations are not possible. By the way the purpose of the inquiry is to find out working hypotheses for a given context rather than verification. In this study, the first fundamental concept is the *schools of the future*. As mentioned in the literature, dealing with future is significantly a complex thing that is not an observable phenomenon and have underlying multiple trends. For this reason it is not possible to gain insight into how different trends come together in a given situation without in-depth, contextual investigation of the problem.

In addition to naturalistic paradigm of qualitative research, this is also interpretative in nature by its concentration with how the issues, situations are understood and experienced. Qualitative research studies are based on flexible and interpretative data generation methods in order to reflect the real life or natural setting (Patton, 2002). In this point researchers background of concept is come to the fore. Details will explain in trustworthiness section according to the what were done for credibility of the research but this is important to mention interpretations of researcher was done in very carefully. As Patton (2002) stated personal experience and emphatic insight can include as a part of data in qualitative research. In this study researcher's goal was to add information not to reflect her dispositions to findings. To this attempt findings supported with quotations and multiple data (interview, desk research, observation etc.) to provide internal validity. Researcher also used direct quotations for the sake of internal validity.

In relation Denzin (1989) comments that all research is really about the researcher; but in order for the research to be of value it must move beyond the

researcher and researcher's situation. In this research, researcher is interested in the participants' perceptions being the predominant voice to tell the story so she kept her personal interpretations out as much as possible. For this aim researcher preferred to support findings with quantitative data, report results and statistics as far as they are available. Furthermore researcher in order to prevent this research from being a narrative of her own opinions, she recorded detailed field notes and took photos of schools during observations. On the other hand there is a point that people keep in mind each qualitative study is unique because every stage of the research is based on motivation, training, opportunities and effort of the researcher. Although many details and rationales behind implications mention during each phase is explained in different sections of the study overcoming challenge of data collection from different participants, construct a framework and make sense of massive amounts of data is mostly based on the capability of researcher.

3.1.1 Data Source and Participants

Rossmann and Rallis (1998) mentioned the decision about the size of the sample about the presence of two choices: Either to gather data broadly or to gather in-depth data. They state that gathering data from a large number of participants bring about information from many perspectives, whereas gathering data from a few participants encourages an in-depth understanding that is not possible with a large number of participants. As the present study aim to gain in-depth understanding of the concept, it seemed plausible to opt for a sample size small enough to carry out an in-depth study with large enough variation so that it reflected the differences in the perspectives. Totally 44 participants attained this study to response interviews by sharing their experiences and expectations. Besides sample size the target audience for this research was determined as (1) Policy-makers and scholars (2) National and international organizations, (3)

Professional networks and institutions and (4) Practitioners – school leaders and teachers.

This study required reaching variety of people in terms of their profession, major, background and orientation in the field of education. For this reason for each and every phase designed uniquely to supply maximum detailed data. For this study purposeful sampling procedures were followed and detailed information according to participants will be given later under the data source and participants of each phase.

3.1.2 Data Collection Instruments and Procedures

In a qualitative study, peoples' perspectives and experiences are given great value. Due to this and main data collection instruments of the study are interviews and observations. Researcher used quantitative data that derived from desk research to support findings of interviews and observations. Arksey and Knight (1999) stated that the qualitative research interview is a valuable research method for exploring "data on understandings, opinions, what people remember doing, attitudes, feelings and the like, that people have in common" (p:2). Interviews are crucial in this study because they give the researcher the opportunity to elicit different answers to the questions in his/her mind. Since this study aims at understanding the thoughts of participants according to given concepts. Moreover, observations are useful for getting the story behind a participant's response. The observer can pursue in-depth information around the topic by gathering first hand data with observations. Observations were also useful as follow-up to certain respondents to interview questions to further investigate their responses.

Once the experts have been identified, their views was sought face to face, via telephone through, *semi-structured interviews*. Semi-structured interviewing is more flexible than standardized interview and this method allows for the

exploration of emergent themes and ideas rather than relying only on concepts and questions by probing for novel, relevant information, through additional questions (Hockey, Robinson, and Meah, 2005). Face-to-face interviews were used for key experts and stakeholders, allowing the interviewer to interpret body language and other “secondary” sources of information. Telephone interviews were used when resources are unavailable to conduct face-to-face interviews. These interviews aim to gather qualitative data of existing situation of the school and future expectations of participants. Interview Schedules (Appendix B, C, E, F) are essentially composed of open-ended questions in order to describe different aspects of perceptions and opinions and to focus on particular themes structured beforehand according to the research questions. The interview sessions planned to take about 1 or 1,5 hour. All the interviews will be conducted by the researcher and recorded for transcription, and analysis. For these interviews each participant was informed of the purpose of the research. Some demographic information was collected.

For these semi-structured interviews there are four different interview schedules are prepared.

Interview Schedule 1: This tool was designed to get initial responses from teachers and school leaders related with “schools of the future concept” (Appendix B).

Interview Schedule 2: This tool was used during field trips to gather information about different typed schools and to understand their perspective on future education (Appendix C).

Interview Schedule 3: This schedule was used to take expert opinions on exploring trend that have possible impact on schools of the future (Appendix E).

Interview Schedule 4: This schedule was used to take Expert Opinions on Scenario Framework (Appendix F).

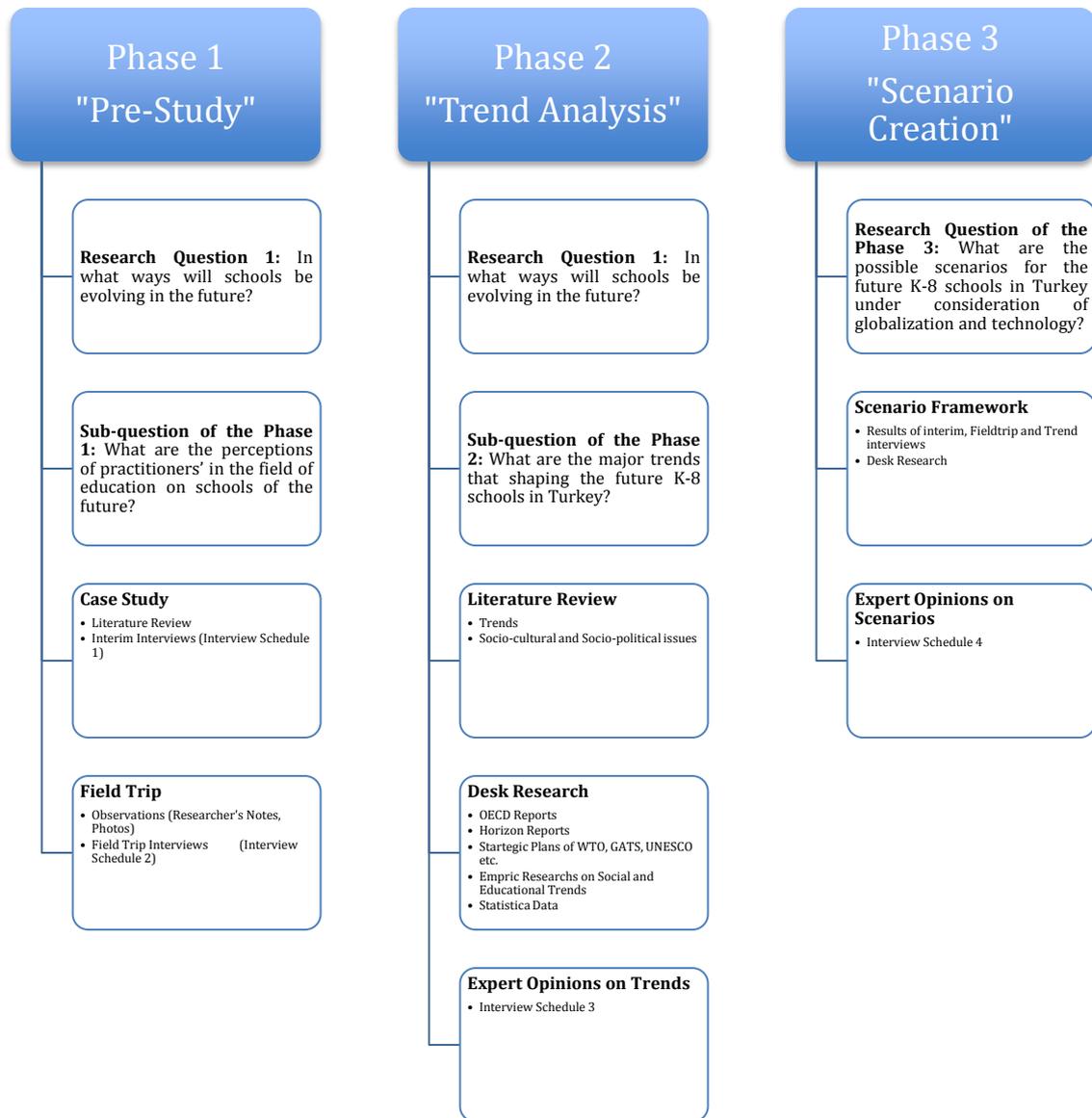


Figure 18: Data Collection Methods, Sources, Instruments

3.2 Design of Phase 1 'Pre-Study'

This study was started with the investigation of the *Schools of the Future Concept*. Geertz (1973) suggested -If you want to understand what a science is you should look in the first instance not at its theories or findings and certainly not at what its apologists say about it; you should look at what the practitioners of it do (p. 5). Researcher got started to search 'Schools of the Future' concept with *analytic induction* procedure. Bogdan and Biklen (1992) stated that analytic induction is an approach 'to collecting and analyzing data as well as a way to develop and test a theory' (p.71). The procedure of analytic induction is employed when some specific problem, question or issue becomes the focus of research and data collected through a descriptive model that encompasses all cases of phenomena (Bogdan and Biklen,1992). Researcher interested in 'Schools of the Future' concept and she started to study with literature review and 'the informal conversational interview' as defined by Patton (2002). Data collected through these procedures are not analyzed but used as referential adequacy of study. Although researcher didn't come up with results during analytic induction, this process leads her to conduct a 'Case Study'. Inquiry process went in this way because there is a problem emerge as 'How to develop theory on a concept that haven't existed yet'. Researcher decided to go with different methods to keep away her research from this controversial position. On the other hand analytic induction gave chance to researcher a highly flexible inquiry process during mental preparation of research.

Case study design was preferred to gain initial understanding on the concept of schools of the future. Since first hand thinking that the results obtained would help the researcher to visualize and reveal the real-life situations better. Case studies provide the readers with unique examples of real people in real situations, enabling them to comprehend the ideas more clearly and vividly rather than presenting them with some abstract principles and theories (Cohen, Manion, & Morrison, 2000). A naturalistic approach was taken during the study. While the

researcher was involved in the case (Cohen et al, 2000), her purpose was not to test a hypothesis or to influence the normally occurring patterns but to describe and understand the case as a unique social context (Allwright & Bailey, 1991).

According to the educational scenario of Turkey (Asci & Kizilhan, 2009) there are four possible key features of elementary level education and four criteria was determined based on these features to select a case. These criteria are 1. Inquiry Based Learning 2. Using ICT in education 3. Supporting World Citizenship Idea 4. Give Importance to Foreign Language. All schools in Turkey are following the same curriculum but some private schools are integrated international curricula based on inquire learning in their program such as IB- PYP and provided more comprehensive foreign language education. For this reason public schools are not satisfying any criteria. Although all private schools (N=46) in Ankara is satisfying the fourth criteria only four of them is satisfying the first and third criteria since they are following IB- PYP. Moreover when we consider the four schools in terms of using ICT in school. Only our Case School is using smart boards and Tablet PC's in elementary level. This case school used to describe learning environment and curricular activities of the school and explore expectations from schools of the future. In addition to all that this school is also following researches on education and international accreditation procedures very closely.

The school is located in city center of Ankara. There are 4 schools within one campus: Primary School, Middle School, Science High School and College. The Case School has been an IB World School since November 2006. It offers the IB Primary Years Program and IB Diploma Program. The school is private. The Case School founder says, "It is not possible to manage change with pencils and paper. If we aim to teach the 12 million primary school students in Turkey through an individualized and unique education program, we must use technology effectively." For this reason The Case School Change Educational Processes to Help Students Using Tablet Technology. The Case School provided their students with tablet PCs running Windows 7 Enterprise in order to meet the schools'

educational needs and help the schools to keep up with the demands of educational systems in the twenty-first century. The Case School provided 1000 students and teachers with tablet PCs running Windows 7 Enterprise, which were set up with nonstop Internet access and Microsoft software, from basic utilities to student/teacher desktop applications.

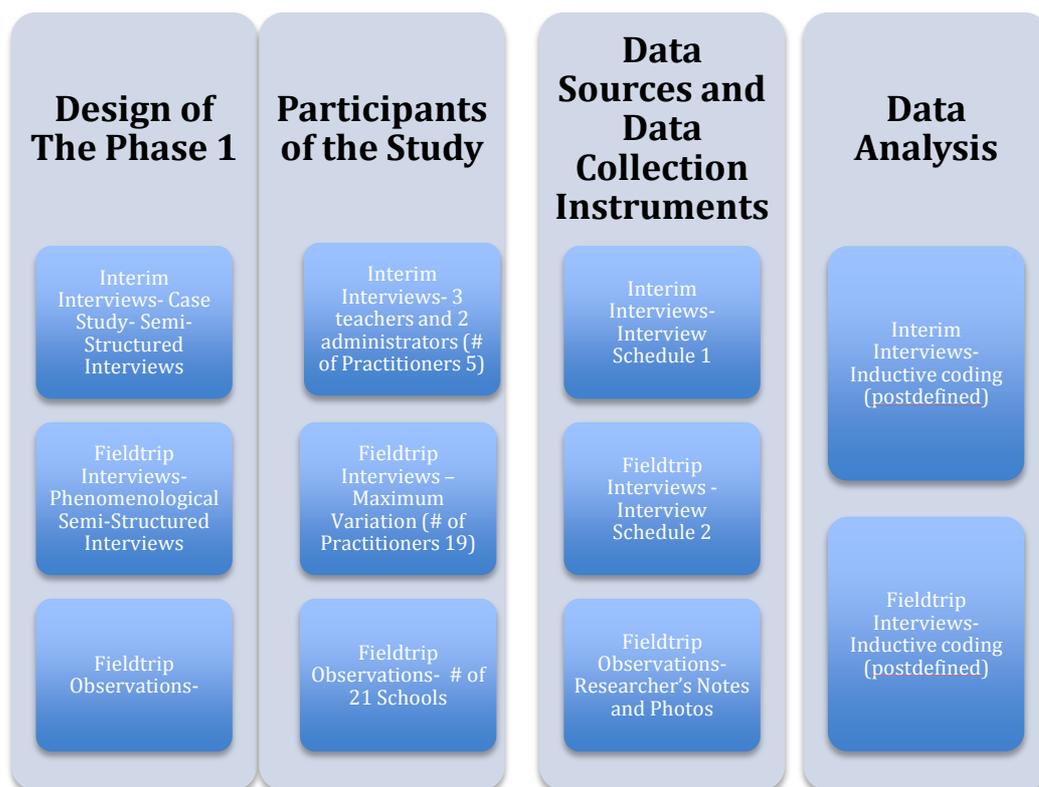


Figure 19: Overall Design of Phase 1

Results of the case study indicated that there is a tendency to *learner-centered education* for the future schools. This finding lead researcher goes deeper to investigate what can be the implications for the learner-centered education. To this attempt a fieldtrip was organized to gather data from different alternative schools in the U.S. that main orientation is learner centered education. In these schools interviews were conducted and unstructured observations were

done to gain wider perspective on schools by investigating school milieu. This part of the study was like go ‘back to future’ to draw detailed picture of schools. Interim interview participants suggest some solutions and mentioned their own understanding according to the future of schools.

Often the primary reason for using observational methods is to check whether what people say they do is the same as what they actually do. But in this study unstructured observations used to gather data on physical and social environment of each school. Patton (2002) stated observational data “permits the evaluator to understand a program setting to an extent not entirely possible using only the insights of others obtained through interviews” (p.12). Schools were selected based on representing different applications of learner centered education and differentiation. Researcher's notes and photos are used to keep data from these schools. These schools were selected because they are the schools which are following learner centered education or differentiation. These schools are selected from the U.S. because of the obligations of national curriculum schools in Turkey cannot use this strategies especially in some levels of education. These observations gave a great chance to feel the environment of all this unique schools and their philosophy behind.

As Frankel and Wallen (2000) mentions the researcher-conducted interviews with teachers and administrators in the school, visit classes, spent time in school environment but not attempt to participate in the activities. This intension carried out for to do a *naturalistic observation*. Naturalistic observation is observation carried out in real-world settings: it is an attempt to observe things 'as they are', without any intervention or manipulation of the situation itself by the researcher. This has been described as a 'pure' or 'direct' observation (Punch, 2009, p.154).

Naturalistic observation is a broad category of methods that can take a range of forms of recording and for this study researcher used note taking and took photos to keep clues on learning environment. Frankel and Wallen (2000) state there are two kinds of field notes descriptive and reflective. In this study

researcher followed descriptive field note technique because intension was to describe the setting. Researcher attempted to describe the infrastructure and design of schools. Last but not least observations used to understand curriculum implications and school milieu of related school rather than as conclusive findings according to one particular situation.

Finally there is a point might be useful to highlight, in all parts of the Phase 1 researcher didn't limit study for K-8 because all kind of data related to schooling could be helpful for the next phases of research. For this reason interview questions were more general and observations were done through K-12.

3.2.1. Data Source and Participants of Phase 1

In this phase there are three kinds of data sources: *Interim Interviews*, *Fieldtrip interviews* and *Fieldtrip Observations*.

For Interim Interviews there are 2 principals and 3 teachers attained to interviews in the case school. Participants selected by convenient sampling procedure and Interview Schedule 1 was used for this interviews. Although observation is an integral part of interviews during case studies, in this present study researcher didn't use observation technique. There are just some crucial information were collected to describe school setting.

Fieldtrip interviews were conducted in different school types to understand learner centered education and how they perceive "schools of the future" concept. For this interviews phenomenological interview procedure was followed. For participant selection maximum variation sampling procedure was followed. First of curriculum theory literature was reviewed and represented schools to 'learner centered education' find out (Schiro, 2008; Ellis, 2004). Researcher prepared a list of learner-centered schools in East Cost region of the U.S. and sent e-mail that explains purpose of the research. After that respondents classified by school type and region and made appointments for interviews and observations.

Interview Schedule 2 is used during field trips to gather information about different typed schools and to understand their perspective on future education. These schools were selected from the U.S. because there isn't any that kind of schools that operate in Turkey. These interviews (Table 1) gave a wider perspective to researcher instead of bookish knowledge on wide range of philosophies on education. There are total 19 practitioners attained to these interviews.

Table 1: *List of Interviewees from Different Institutions*

Institution Name	Teacher	Coordinator	Principal	Academic Advisor	TOTAL
Hudson Valley Sudbury School	X				1
Democracy Prep Charter Schools	X	X			2
St. John's Episcopal Reggio Emilia Preschool	X	X	X		3
Waldorf School of Princeton	X	X			2
Green Meadow Waldorf School		X		X	2
Renzulli Academy			X	XXX	4
Nueva School	X				1
Commonwealth School			X		1
Alternative Education Research Organization			X		1
Hugo School in Manhattan	X				1
Sierra Academy	X				1
TOTAL	7	4	4	4	19

Fieldtrip Observations gave researcher a chance to observe physical and social environment in first hand and ask additional questions to interviewees. It was highly important to make these observations in the related schools that also interviewees attained study because of understanding participants' perspective in real environment. Table (2) is depicting the list of observed schools.

Table 2: *Field Trip Observations*

School Name	Pre-school	Primary School	Middle School	High School	TOTAL
Hudson Valley Sudbury School	X	X	X	X	4
Democracy Prep Charter School			X		1
St. John's Episcopal Preschool	X				1
Waldorf School of Princeton	X	X	X	X	4
Green Meadow Waldorf School	X	X	X	X	4
Renzulli Academy			X	X	2
Nueva School		X	X	X	3
Commonwelth School			X	X	2
TOTAL	4	4	7	6	21

3.2.2 Data Collection Instruments and Procedures of Phase 1

This Phase was started with the literature review to gain different aspects of schools of the future. Written documents help researchers understand how a concept is defined by various people and by this way researcher prepared interview schedules. In addition to that Interim Interviews was conducted to elaborate on the current opinions on the concept. These interviews were conducted in one private school (case school) to take initial responses on schools of the future concept. The Interview Schedule 1 (Appendix B) is essentially composed of open-ended questions in order to describe different aspects of perceptions and opinions and to focus on particular themes structured beforehand according to the research question. First interview was done with Deputy General Manager of case school and other participants selected from volunteers. In order to help researcher to catch all the details, all the interviews were recorded after obtaining the consent of the participants. The interview was composed of twenty-eight questions divided into four sets, each set approaching the issue from a different perspective. The prepared semi-structured interview questions were continuously redesigned and used differently in each and every interview with different alternative questions, probes or follow-ups to reflect the interaction between the interviewees and the interviewer. In order to ensure a fluent conversation and friendly environment during the interviews, questions were prepared in Turkish and the interviews were also carried out in Turkish.

In the second part of this Phase *Fieldtrip Interviews* and *Unstructured Observations* was done. The results of the case school lead us to go deeper to search the issue in different contexts. So, this field trip was organized. Researcher visited alternative education schools in the U.S. for two months and made observations and semi- structured interviews. Interview schedule 2 was prepared in English and the interviews were also carried out in English. Participants' talkativeness and willingness to participate in the study facilitate to carry out interviews. Interviews mostly done in the participants own school to involve

learning environment and investigate the school context in detail. In this point observation also captures the whole social setting in which people function, by recording the context in which they work. Mulhall (2002) used the analogy of a jigsaw for this situation. She stated that “Interviews with individuals provide the pieces of the jigsaw and these pieces are then fitted into the ‘picture on the box’ which is gained through observation” (p.308). Observation is also an ongoing dynamic activity that is more likely than interviews to provide evidence for process.

For recording data of observations field note technique was used and photos were taken to facilitate recall of observed setting. Mulhall (2002) mentioned that most researchers would agree that it is important to record field notes as closely as possible in time to when events were observed. For this reason researcher took notes in the meantime or soon after observation. Recording events as they happen or shortly afterwards ensures that details, and indeed the entire event, are not lost to memory. Sometimes mental notes were put on paper immediately after the observation and certain things remain to add after the observation. Researcher always wanted to make observation first to take notes according to setting and then conducted interviews. This procedure also helped researcher to ask details that she captured during observations. Duration of each observation is different from each other because of duration of time. Moreover when there is time limited for observation before interview researcher asked to go back to field (school). Summary of Field Notes are represented in the Appendix (D). The Table (3) is depicting the summary of features of every school attained this study.

Table 3: *Summary of Fieldtrip Observations*

School Name	Age	Curriculum	Instruction	Evaluation	Administration	Application Procedure	Design Tips	Demographic Features of Students
Hudson Valley Sudbury School	5-17	Free to take out of school credits. Daily meetings to choice	Social and informal learning, freedom of choice	Non-grading	Democratic Administration of School	Parent and student choice	There is no regular classroom setting,	High and middle SES
Democracy Prep Charter School	9-12	Standard Curriculum	Teachers are responsible for the meet demand	Quantitative assessment, standard tests	Traditional school administration	Low income neighborhood	Regular classroom setting	Low SES
St. Johns Episcopal Preschool	3-6	Inquiry based, project based curriculum Daily meetings	Two classroom teachers in each class.	Only Qualitative assessment	Traditional school administration	Private school	Arts studio and interest centers in every class	High SES
Waldorf School of Princeton	5-17	Moral values, learning through arts. Holistic education (mind, body, soul)	Artistic way of teaching, classroom teachers teaches until 8 th grade	Qualitative and quantitative assessment	Traditional school administration	Private school	Unique Waldorf design	High SES
Green Meadow Waldorf School	5-17	Moral values, learning through arts. Holistic education (mind, body, soul)	Artistic way of teaching, classroom teachers teaches until 8 th grade	Qualitative and quantitative assessment	Traditional school administration	Private school	Unique Waldorf design	High SES
Renzulli Academy	9-17	Enrichment clusters, Curriculum compacting	Diffifferentiated instruction	Qualitative and quantitative assessment	Traditional school administration	Special identification procedure for gifted	Learning studios	Low and Middle SES
Nueva School	7-17	Enrichment clusters, Curriculum compacting	Diffifferentiated instruction	Qualitative and quantitative assessment	Traditional school administration	Special identification procedure for gifted	Classrooms and different learning studios	High SES
Commonwealth School	9-17	Enrichment clusters, Curriculum compacting	Diffifferentiated instruction	Qualitative and quantitative assessment	Traditional school administration	Special identification procedure for gifted	Classrooms and different learning studios	High SES

3.3 Design of Phase 2 ‘Trend Analysis’

This phase of the present study was designed to do a *Trend Analysis*. Trend Analysis is the study of gathering data and attempting to spot a pattern according to a concept or phenomena. Trend analysis is often used to project future events via using past or current data. In other words trend analysis searches how a potential drive of change has developed over time, and how it is likely to develop in the future. Rational analysis of development patterns provides a far more reliable basis for speculation and prediction than reliance on mere intuition (OECD, 2006).

Literature review according to trends lead researcher to meet with futures thinking methodologies. Because there is a set of possible futures, researcher decided to use trends analysis for scenario creation to predict possible futures in the light of current trends. The large range of possibilities opened by trend analysis makes it key for developing robust scenarios that meet essential criteria (OECD, 2006): *Plausible*: Logical, consistent and believable, *Relevant*: Highlighting key challenges and dynamics of the future, *Divergent*: Different from each other in strategically significant ways and *Challenging*: Questioning fundamental beliefs and assumptions.

Reports published by OECD for ‘Schooling for Tomorrow’ project gave an initial understanding on issue but the aim of this study is not replication. Rather than replicating OECD study this present study aim to find out unique trends that seem influential for schools of the future in Turkish context. For instance trends of this present study is not include ageing society as OECD study. On the other hand results show that there is a similarity between including globalization and technology trends.

In the light of aforementioned explanations first a profound literature review was done on socio-cultural, socio-political and economic trends and then *desk research* and *interview* (Trend Interviews) techniques were used for gathering data on trends shaping education in Turkey. In the scope of Desk Research, researcher searched for OECD Reports, Horizon Reports, Strategic Plans of WTO, GATS, UNESCO etc. Empiric Research on Social and Educational Trends, Statistical Data in related to trends. The results of desk research prepared researcher to do trend interviews. In this Phase, researcher aim to gather information on current trends to explore possible effects on future schools. Interview Schedule 3 was used to take expert opinions on exploring trend that have possible impact on schools of the future. These interviews are limited with K-8 education because desk research indicated that territory and higher education institutions have their unique trends and it is too much for one study to take them all together.

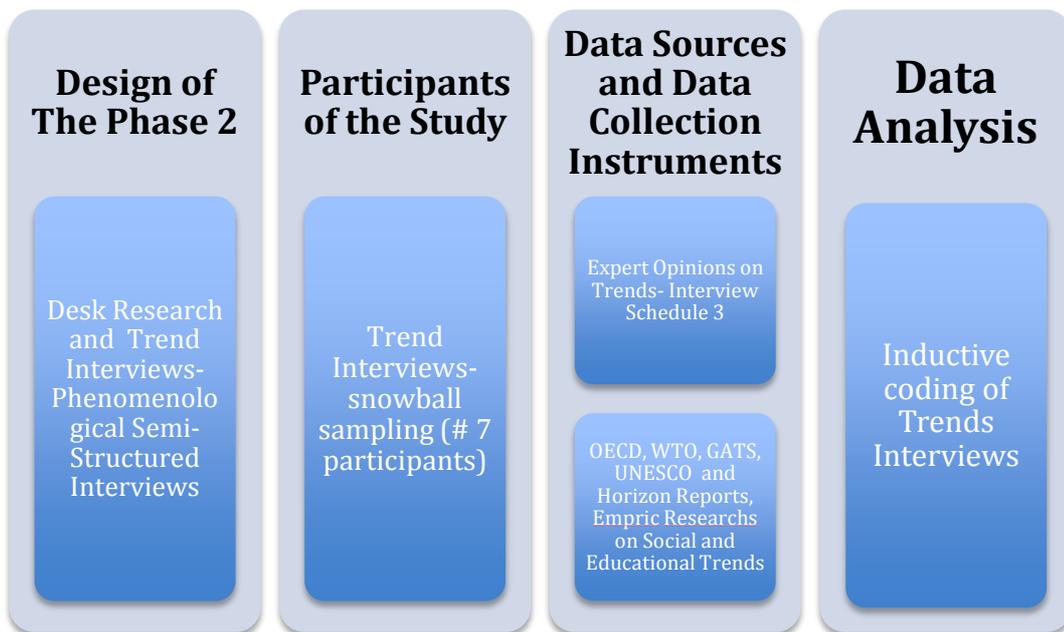


Figure 20: Overall Design of Phase 2

3.3.1. Data Source and Participants of Phase 2

Trend Analysis is started with the screening the related policy documents in the field of education. To this attempt for last 20 years Strategic Plans of WTO, GATS, UNESCO and OECD Reports were investigated in detail. To elaborate on this process Empiric Research on Social and Educational Trends, Statistical Data in related to trends were added to this screening. In the scenario development documents this process called *desk research*. There is no a crystal clear distinction between document analysis and desk research but in this study desk research term will use to remain true to original scenario development literature. In desk research, it is important to establish what exactly the scenario is going to be used for, which processes will be used, and which level of complexity is chosen (i.e. delineating). This calls for a first overview of the most salient elements in the area on which the scenarios will focus, i.e. a mapping exercise. Delineating and mapping sets the ground for the rest of the work, giving focus to the identification of trends and issues and the building of scenarios, and helping to ensure that design is thought through and not missing important elements (Iversen, 2006).

While delineation is related to the goals and design of the scenario process, “mapping” is about establishing an overview of the subject matter. This is done with the help of desk research and interviews. Desk research should involve a wide variety of sources. The Internet is an obvious tool for this and good sources of information are government agencies, nongovernmental organizations, international consultancy companies, research communities, and on-line and off-line journals related to the subject. Desk research is an analytical approach positioned between the participatory and the model-based methods. It usually is dependent on a single individual or small team of researchers, drawing on literature analysis or archive research. An example of such a desk study is Bobbitt’s *The Shield of Achilles* (2002), which explores the history and possible futures of the “market state” based on extensive research on warfare, international relations, and international and constitutional law (Van Notten, 2006).

In the light of desk research it was so clear that there is a need for to identification of experts for trend interviews very carefully. Participants must be knowledgeable both in sociology and education to give detailed information and make connections between social context and school. For this aim snowball sampling method was used. Snowball sampling method is appropriate to use in research when the members of a population are rare. In this method researcher collects data on the few members of the target population he or she can locate, then asks those individuals to provide information needed to locate other members of that population whom they know. In the present study researcher began to follow meetings of SEC-BIR (Sociology and Education Research Unit) in Bilgi University to follow current sociological researches in the field of education. This meetings gave researcher a chance to meet sociologists in the field and she asked them to suggest participants for this study. This was a real challenge to find researchers that have both sociology and education background but researchers in the SEC-BIR recruit additional research participants. Table 4 is depicting the all participants to trends interviews.

Table 4: *Trends Interview Participants*

# of Participants	Title	Gender	Major
Tre 1	Policy Analysis Coordinator	Male	Comparative Education
Tre 2	Dr.	Male	Sociology
Tre 3	Dr.	Female	Curriculum and Instruction
Tre 4	School Coordinator	Female	Classroom Teacher
Tre 5	Prof.	Male	Educational Administration
Tre 6	Prof.	Male	Sociology
Tre 7	Associated Prof.	Male	Sociology

3.3.2 Data Collection Instruments and Procedures of Phase 2

In this process trends considered in variety of aspects because trends vary in their breadth of application. For example, take the trend toward longer lives, also known as 'the aging society'; given that schooling is to prepare people for life, what is the proper role of schooling for the learning and cultural needs of the elderly? How might higher pension spending affect school budgets? These are just two of the many issues that arise from this one trend. Combining several trends, and considering the questions raised by each, can generate a rich picture of how a sector might develop (OECD, 2006). This point of view lead study to investigate *Schooling for Tomorrow* trends first. The main trends investigated so far are: aging societies, population growth, widening inequalities in wealth and income, increasing diversity in the ethnic make-up of OECD countries, urbanization, globalization, the shift to a knowledge-based economy, and the evolving nature of work (OECD, 2006).

First of all, The Starter Pack (2006) provides guidance on how to use and critically examine trends. It also outlines methods to identify trends and drivers that directly and indirectly influence the scenario's subject. Secondly, The Trends Shaping Education Publications (2008, 2010, 2013) offers briefs on the trends investigated so far and relates each of them to education, by suggesting questions on how they might affect schooling in particular. Finally, the trends presented in this study identified during an integrative literature review, conducted to summarize the current state and future directions of education. Books, journal articles, reports, and web sites were selected based on relevance to schools of the future. Moreover Strategic Plans of WTO, GATS and UNESCO, Empiric Research on Social and Educational Trends, and Statistical Data in related to trends were investigated in detail. For this review, researchers collected citations identifying and supporting unique trends in a document. After that process a list of trends derived to elaborate with participants' perceptions in Interview Schedule 3.

Table 5: *Desk Research Themes for Trends Shaping Education*

Demographic Trends	<ul style="list-style-type: none"> Ageing Society Fewer Children Migration Mobility Sustainability And Environment Growing Energy Consumption Population Growth Urbanization Inequality And Poverty Smaller Families Single Parent Families Less Social Interaction Evolving Values
Economic Trends	<ul style="list-style-type: none"> The Global Economy Knowledge-Intensive Economy Lives Less Dominated By Work Less Securely Attached To The Labour Market Women At Work The Learning Society Educational Attainment Rising Investments In Education Global Educational Patterns (Inequalities And Student Flows)
The Digital (And Learning) Society	<ul style="list-style-type: none"> The Changing World Of Work And Jobs The Digital Revolution The Expanding World Wide Web
The Political And Social Factors	<ul style="list-style-type: none"> Changing Forms Of Political Participation The Role Of The Welfare State – Smaller Government

As OECD Reports (2006, 2008, 2010, 2013) mentioned first, there are major *demographic* trends. These concern the OECD countries and lead on to global developments not just of population levels and movements but living conditions and the environment. Second, there are *economic* trends relating both to the nature of economies and to the kinds of work and jobs people do. Third, we present *themes related to the digital (and learning) society* in which we live, in which education makes its own important contribution. Fourth, there are the *political and social factors* to do with the role of the state, the social environment and families, and trends concerning sustainability. Table (5) represents the themes derived from overall desk research process.

The following questions were used to identify which trends are more influential in Turkish context.

Question (1) Which trends are relevant for Turkish context? This question is important to find the most relevant trends for Turkey. Trends may differ both in size and direction in different countries, regions, districts or even schools. Ageing populations, for example, may be a bigger problem in rural regions than in urban areas, or ageing populations may be concentrated in certain districts in a city or parts of the country (OECD, 2006).

Question (2) Are there other trends to take into account? Researcher derived these trends from international literature for this reason there can be other local trends that will be just as important to consider. Different places face different challenges. For instance aging society (de-populating) is case for OECD countries but in Turkish context population growth is main concern.

Question (3) Which trends have critically importance for Turkish Education? All these trends are highly important but the aim of this trend analysis is to determine the most crucial ones to create scenarios.

Question (4) What will the impact of these crucial trends to Turkish education in the future? This question is the seminal part of the trends interviews.

After that point participants gave massive amount of data according to their before mentioned responses.

Question (5) How can we deal with these trends in the future? Can we influence or react them? In this final question researcher gather data on suggestions of participants according to mentioned trends shaping education.

In the light of these questions interviews were conducted and responses organized in to new themes. Table 6 is depicting the mentioned themes by participants. Further details of the themes will discuss in results section.

Table 6: *Themes Mentioned by Participants for Trends*

	Tre 1	Tre 2	Tre 3	Tre 4	Tre 5	Tre 6	Tre 7
Globalization		X	X	X	X	X	X
Knowledge Intensive Economy	X	X	X	X	X	X	X
Work and Careers	X	X		X	X	X	X
Global Inequality		X			X	X	X
Poverty		X				X	X
Cultural Diversity	X	X	X	X	X	X	X
Transportation		X				X	
Urbanization		X				X	X
Educational Globalization	X	X		X	X	X	X
International Benchmarking	X	X	X	X	X	X	X
Privatization	X			X	X		
Nature of Governance	X			X	X	X	X
Technology	X		X	X	X		X
ICT Usage in Schools			X	X	X		X
Personalized Learning	X		X	X			
Hybrid/ Blended Learning Designs			X	X			
Teacher and Student Roles		X	X	X			
Open Educational Sources	X	X	X	X			
Flipped Classroom			X	X			

3.4 Design of Phase 3 ‘Scenario Creation’

The purpose of this phase is to develop a set of internally consistent scenarios. This scenario creation phase includes many different steps and putting altogether the data gathered from previous phases especially from Phase 2: Trends Analysis. Basing scenario content on trends analysis ensures that they are: Plausible, Relevant, Divergent and Challenging as mentioned in trends analysis. Building scenarios upon carefully identified trends improves the robustness and realism of scenarios (OECD, 2006).

Although there are plenty of trends shaping education throughout trends interviews these are reduced to two major trends to create consistent scenarios. This can say that deductive thinking was used in this Phase. Scenario framework was designed to be ready to collect data for final phase scenario creation. The scenario framework was created by selecting two of the most important drivers as identified in the interview results to create a matrix of four different scenarios. The advantage of this method is that it is a relatively simple way to create scenarios, without too many drivers with too many different values. The rest of the identified drivers are then expanded within the logic of the four different scenarios to see how they would play out. In the light of above mentioned results this Scenario Framework will conclude the findings of trends analysis. The challenge in this phase is to manage the complexity of the many drivers in a way that will allow the team to create a range of internally consistent scenarios. According to the Trend Interview results Globalization and Technology (ICT) are the most important trends in Turkey context.

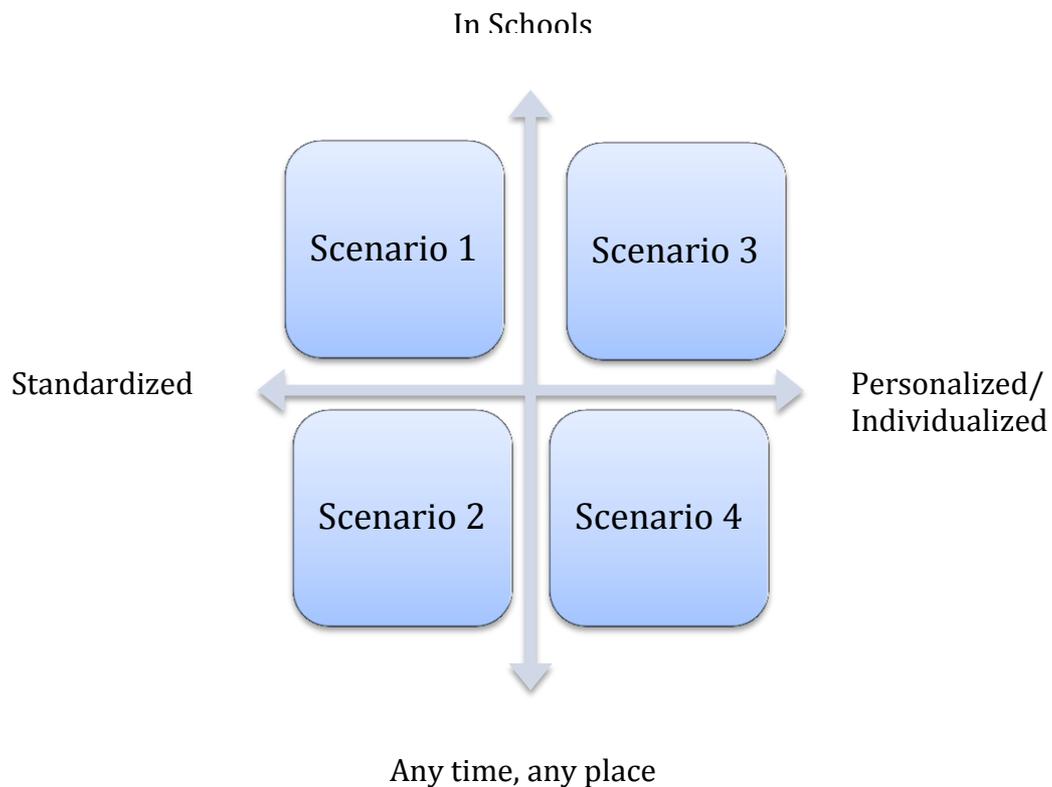


Figure 21: Scenarios on Axis

A challenge facing this study using scenarios is to match the map and the territory. The map is a transcript. To design a scenario is to act as a map-maker where each scenario is a map in itself which builds up an image of what s school might be in the future. A map is clearly different from the territory it portrays, just as at a restaurant the menu (transcript) is not the same as the food we are served (Saussois, 2006). One strength of the scenario methodology is that it can initiate a process of feedback from the users of “maps” to the “map-makers” who designed them whereby the user can help identify inconsistencies and inaccuracies. A common way to map possible trajectories is through using the spaces defined by two cross-cutting dimensions.

The critical contribution of Phase 1 occurred in the determination of sub-themes of trends. As mentioned in results section, there are many sub-themes ‘Globalization’ and there is a need to choose the most relevant one. In this selection process researcher seek relevancy and consistency between Phase 1 results and sub-themes. For instance ‘Privatization versus Public Education’ could be a significant sub-theme but this will not be a representative of previous findings. On the other hand these sub-dimensions would lead researcher to go deeper in educational finance that the present study is not aim to investigate. In addition to that ‘Centralization versus Decentralization’ nature of governance perspective do not also work for this research. Finally for globalization theme *Standardization and Personalization/Individualization* sub-dimensions were determined.

For the second trend (Technology (ICT)) there are two dimensions as well: technology use *In Schools and Any time/ Place Education* through technology. These sub-themes were much more apparent than previous ones because literature review and interview results consistently support the tendency to open educational resources and increasing influence of online education. Furthermore literature review on personalization sub-theme of technology and interview results consistently support the tendency to open educational resources and increasing influence of online education. These results indicate that technology can evolve schools to any time any place education by using hybrid-learning designs.

Globalization Axis has two main components, the “Standardization” of curricula by international regulations and “Individualization” of curricula by giving more power to local authorities. In Technology Axis there are other two main directions that ICT use “In School” and ICT use “any time any place”. Globalization Axis seeks to capture the range of values within which schooling is evolving. The west pole is the strong standardize orientation and at the east is the strong individualistic orientation. In reality, schools are embedded within a society somewhere between the extreme poles. To the west, education is standard oriented and schools are aimed at cohesion, equity and reproduction. The east side

is individualistically oriented, and schooling increasingly geared to learners. This dimension is essentially about authority and its impact on source of curriculum.

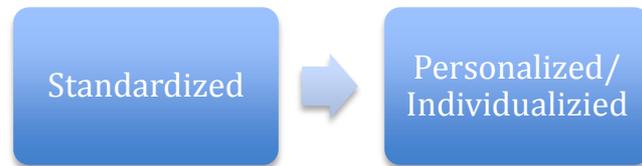


Figure 22: Shifting along the Globalization Axis

A system is a recognizable entity into which different types of resources are the inputs and out of which come products or services. This is represented on this axis that labeled as ‘Technology’. The north pole defines services delivered within schools; the south pole is producing services within any time and place on a much more piecemeal basis. There are two main reasons we gave great emphasis to these dimensions. First the Internet usage in and out of schools is rapidly increasing. Second open educational resources (OER) are growing in breadth and quality, as is the use of these materials in classrooms, networks, and school communities worldwide. The use and adoption of OER materials is increasingly a matter of policy in schools, especially in the many disciplines in which high quality educational content is more abundant than ever.

After determining scenario framework with themes and sub-themes researcher come up with two way matrix of scenario that includes four scenarios. Scenarios may be developed and used in either a normative or an exploratory manner. Normative scenarios are like visions for the future. Often only one or two scenarios need to be developed, and their main purpose is to identify the “perfect future” for a given subject. The scenarios may then be used as a tool to identify actions to be taken by different actors if these visions for the future are to be realized. This method is most often used by organizations that have a very clear

political agenda and a set of goals they wish to pursue without too much debate on the uncertainties of the future.



Figure 23: Shifting down the Technology Axis

“Vision 2023” agenda can be as a sample of this kind of scenario. For education that is full of uncertainties, exploratory scenarios will usually be more appropriate (Iversen, 2006). These are created in order to understand just how different the future may become and what may drive these changes. With this sense in this study we created exploratory scenarios that are: plausible (logical, consistent and believable), relevant (highlight key challenges and dynamics of the future), divergent (differ from one another in strategically significant ways) and challenging (challenge fundamental beliefs and assumptions) (Iversen, 2006).

In the light of aforementioned considerations four dimensions of scenarios were determined. In OECD scenarios all share the same five-dimensional framework, so that one can look at similar issues in different futures, “attitudes, expectations, and political support”, “goals and functions” of education systems “organizations and structures”, the “geo-political aspects” and “the teaching force”. The number of dimensions can be adapted according to the purpose in hand, but keeping the same dimensions in each scenario facilitates comparisons (OECD, 2006).

1) Attitudes, expectations, political support: This dimension covers public and private attitudes towards schools, including the depth of political support for

schools and learning in general. It looks at how schools are valued, and the roles they are expected to play in communities and society at large. Cultural and political environment, Public attitudes, the degree of consensus or conflict over goals (dis)satisfaction with schools, and the level of recognition and esteem in which they and teachers are held, will all be critical in shaping the future of schooling. The broad environment becomes even more critical the more that schools are called upon to be autonomous, work in partnerships, and orient themselves to demand. Should this environment be viewed largely as a given and beyond the reach of educational policy? Or instead, should it be treated as an important target of policy strategies, with a view to setting in train virtuous circles on matters that are beyond the reach of regulation and administration? (OECD, 2001).

2) *Goals, functions, equity*: This dimension covers what schools is meant to achieve. It outlines the main curricular and extra-curricular functions, accreditation arrangements, and the settings for learning both inside and outside schools. It also looks at social and cultural outcomes of schooling. One of the strengths of the systemic “status quo” model is its pursuit of a formally equal opportunity structure, even if this may come with excessive bureaucracy and continuing actual inequalities. In the other scenarios (except Scenario 1), major departures from standardization are sought, though by different routes and approaches to inclusion/exclusion. Important equity questions are raised by all the scenarios. How should the tensions between diversity, flexibility and equality of opportunity be resolved?

3) *Organizations and Structures*: This dimension describes the formal and non-formal organization of schooling. It covers the different roles for the public and private players in the delivery of education, the involvement of community bodies. In addition to that accountability is the crucial element of this dimension. How can accountability be assured without undermining flexibility of action? This is an integral feature of all the scenarios. Scenario 4 –learning centers– assumes a much-reduced degree of control. The mechanisms through which accountability is

realized, however, differ widely across the scenarios: from those based on the close monitoring of performance and attainments, to the accountability generated by the exercise of “client demand”, to that exerted by widely-shared norms of demanding quality standards. As demands on schools grow, and with it the costs of failure, how can the need for accountability be assured without its mechanisms undermining the very quality and flexibility they are intended to promote? (OECD, 2001)

4) *The Geo-political Dimension*: This dimension looks at the local, national, and international environment and arrangements for schooling. This includes educational governance, the nature of service providers, and responsiveness to external pressures.

5) *The Teaching Force*: This describes who “teachers” are – those responsible for “delivering” education. It considers working conditions, status, and careers. It includes networking, motivations and rewards, and the demarcations between teachers' roles and those of students, parents, and various others whose primary roles lie outside education. Although in OECD scenarios these five dimensions are used to create scenarios this study did not consider “The Teaching Force” dimension. Teaching and Instruction dimension are really huge concepts and these are far more beyond the scope of this study.

In this study created scenarios have the same dimensions with OECD scenarios for two main reasons. First of all main aim is to create complex and comprehensive scenarios so there is a need to consider many facets of each scenario. Second using same dimensions will give us a chance to make international comparisons at the end of the study. This is a need for to overcome methodological challenge of international comparisons. Even if comparisons are widely developed by international organizations (such as through the PISA surveys of student achievement), they actually make demanding theoretical and methodological assumptions giving rise to challenging questions. What is the specific objective, explicit and implicit, of the international comparison? How to deal with the societal dimension? Can there be a ‘culture-free’ approach? What

are the consequences of this variety of approaches for the scenario methodology? The first approach is implicitly ‘culture-free’ and implies an underlying common set of relationships but with the education system itself considered as a “black box” (Saussois, 2006).

This conception allows the performance of one system to be compared with another one with the challenge being to identify appropriate indicators for this purpose. Differential performance may be explained by pointing to cultural traits (which are at the heart of the second approach). Once the “black box” is opened, however, the anthropological dimension comes to the fore meaning that a public activity like education has then to be understood in terms of values and norms. The institutional approach allows for search two countries might obtain the same results using different organizational models and avoids the assumption that there is “one-best” way (Saussois, 2006).

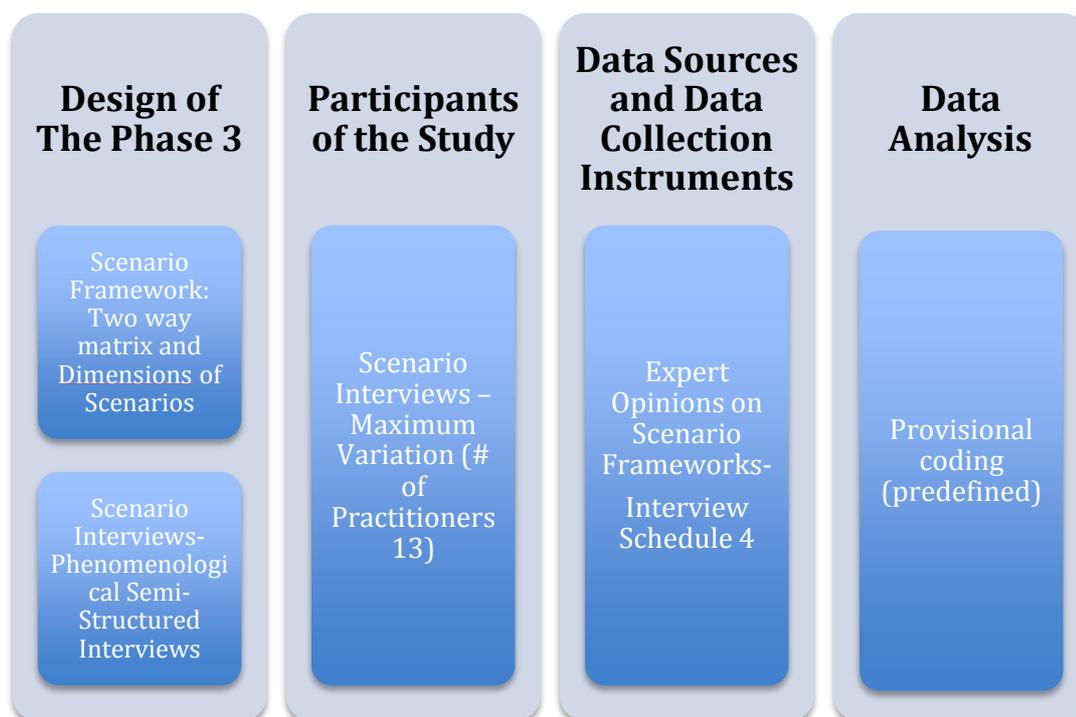


Figure 24 : Overall Design of Phase 3

There are thus varying definitions of “scenario” but on one point there is consensus: it is not a prediction (Van der Heijden et al., 2002). Characteristics inherent in the various definitions include that they are: hypothetical, causally coherent, internally consistent, and/or descriptive. A definition which covers many of the characteristics proposed by others is: Scenarios are consistent and coherent descriptions of alternative hypothetical futures that reflect different perspectives on past, present, and future developments, which can serve as a basis for action. (Van Notten, 2006).

The typology that presented in the table identifies three broad “macro” characteristics which are central aspects of scenarios and their development. The macro characteristics apply both to sets of scenarios and to individual scenarios. They address the why?, how? and what? of a scenario study: its goals, the design of the process, and the scenario contents. The project’s goals influence the design influencing in turn contents. The typology (Table 7) demonstrates the diversity of contemporary scenario approaches. It also underscores the flexibility of scenario approaches in terms of the ways and contexts in which they are used, as well as the output that they produce (Van Notten, 2006). There are many types of scenario approaches in use ranging from the highly exploratory to the decision-oriented, and intuitive to analytical. The scenarios that they produce demonstrate varying degrees of complexity. There is no single correct approach and different contexts require different scenario approaches. The typology helps to organize the diversity of studies to cut a path through the thicket of possibilities. It helps create an overview of contemporary scenario practice, which might be used to help determine the design of a scenario process. The OECD “Schooling for Tomorrow” project might benefit from the typology by using it to learn from scenario experiences in sectors beyond education. These range from the computer model-oriented approaches used in the environmental community to the brainstorm-type approaches taken in many commercial organizations (Van Notten, 2006).

Table 7: A Typology of Scenario Characteristics

Broad "macro" characteristics	Detailed "micro" characteristics
<i>The goals of scenario studies</i>	<i>The function of the scenario exercise</i>
Exploration – Pre-policy research	Process – Product <i>The role of values in the scenario process</i> Descriptive – Normative <i>The subject area covered</i> Issue-based – Area based – Institutional based <i>The nature of change addressed</i> Evolutionary – Discontinuity (Abrupt – Gradual discontinuity)
<i>Design of the scenario process</i>	<i>Inputs into the scenario process</i>
Intuitive – Analytical	Qualitative – Quantitative <i>Methods employed in the scenario process</i> Participatory – Model-based <i>Groups involved in the scenario process</i> Inclusive – Exclusive
<i>Content of the scenarios</i>	<i>The role of time in the scenario</i>
Complex – Simple	Chain – Snapshot <i>Issues covered by the scenario</i> Heterogeneous – Homogeneous <i>Level of integration</i> Integration – Fragmented

Note: Taken from Van Notten, 2006

The diversity in scenario approaches makes working with scenarios a flexible approach to exploring the future, which can be shaped to fit different tasks. In the benefits of this flexibility, however, lurks the danger of abuse.

Scenarios about distinct futures have the potential to overcome some of the pitfalls of predictive approaches. What scenarios lose in terms of calibrated probabilistic accuracy can be made up for by a greater openness to initially

unlikely but nevertheless possible outcomes. This is why scenarios have often been used as a tool for strategic thinking, “strategic” in the sense of choosing where to go. The strategic choices involve the selection of overarching, sometimes long-run, goals. And strategic choices are the ones that make a significant difference in the direction of travel, towards or away from strategic goals. Scenarios are also well suited to helping decision makers think about institutional change. However, scenarios face a number of drawbacks, in particular how to imagine and then select a few distinctive and pertinent stories about the long-term future from among the infinite number that is possible (Miller, 2006).

Futurists distinguish normative forecasting from exploratory forecasting. Normative work is based on norms or values. Hence, normative forecasting addresses the question: what future do we want? Exploratory forecasting explores what is possible regardless of what is desirable. Qualitative and quantitative methods can clearly be distinguished, but also combined and help orient the scenario approach towards convergent and divergent thinking (OECD, 2006).

In this study in first three phases exploratory forecasting procedures was followed. The aim is rather than going on a specific direction exploring the possible futures. With this sense qualitative method was used to create scenarios. Quantitative data like survey results and statistical data used for to support narratives and interview results. Finally the last phase of the study is more deductive and speculative on these possible futures and has detailed discussions on scenarios. The purpose of scenarios range from “exploration” at one end of the scale to “discussion for policy making”. The position of the different uses on this scale was reflected in the design, methods and tools used in all stages of the scenario process.

The design may favor either ‘divergent’ or ‘convergent thinking’ (OECD, 2006). *Divergent thinking* is the intuitive approach that involves a creative elaboration of ideas. *Convergent thinking*, on the other hand, is the goal-oriented, analytical, observational and deductive process. The goal of the design is to

combine creativity with rigor. The balance of divergent and convergent thinking will depend, in part, on the following choices: Quantitative (figures, data, statistics, etc.) versus qualitative information (reports, interviews, discussions etc.) and Inclusive approach (participatory methods) versus exclusive approach (work by individuals or small groups). Scenario analysis can range from very *simple* to quite *complex*. Scenarios for exploring a given subject tend to be relatively simple and intuitive compared to scenarios for pre-policy research, which are usually less intuitive and more complex (OECD, 2006). There are three main aims of scenario development.

1) *Developing a shared knowledge of the environment*: The exploratory elements of scenario development are extremely valuable in policy and administration. They address the deeply rooted, culturally-based assumptions that often exist regarding the world and how it works. Working with scenarios in relation to a particular subject may help the participants to challenge and re-conceptualize their understanding of the issues at hand and the dynamics and trends that drive their development. The major goal of the scenario in such a context may “simply” be to challenge existing understandings of the dynamics within one environment and in relation to one subject. A relatively quick and undemanding design may suffice, as the main objective is to understand the driving forces and not necessarily to carry the process forward to problem-solving (OECD, 2006).

2) *Strengthening a public discourse*: The goal of a scenario development process may be to establish public discourse on a range of subjects and to involve as many stakeholders as possible. In this case, framing the issues in multiple scenarios could provide valuable tools to support the public discourse. In this context, it may be favorable to include stakeholders at an early phase of the scenario process, as it would encourage them to take ownership of the process and disseminate the results at a very early stage. This situation requires a robust and resource-intensive process design, since many information sources and stakeholders are involved. Scenarios require greater consistency and precision

when used to support public discussion or as components in larger communication strategies (OECD, 2006).

3) *Supporting decision-making processes*: Scenarios are also used to support decision-making on complex issues with long-term implications. This requires very well-researched, robust scenarios with large amounts of quantified data. Interviews with key personnel and focus groups should be devoted to broadening the understanding of the subject and the possible trade-offs that various choices may entail. As strategic decisions will be taken on the basis of the scenarios, the group must be absolutely clear about both the level of uncertainty in the driving trends and dynamics and how they may be influenced (OECD, 2006).

3.4.1. Data Source and Participants of Phase 3

For the Phase 3 ‘Scenario Creation’ of present study there are two kinds of data sources. The backbone of scenarios are shaped by results of Phase 1 ‘Pre-study’ and Phase 2 ‘Trend Analysis’. Phase 1 is helped researcher to understand mentioned concepts and issues in Scenario Interviews, and gave a wider perspective to interpret and analyze data. As mentioned before scenario creation is a creative way to foresee possible futures but this process is not only intuitive but also based on knowledge in the field of education. In other words we can say that all data derived from previous phases come in to life during *Scenario Creation*. On the other hand Phase 2 ‘Trend Analysis’ provide relevant data to decide major trends in Turkish context.

In this phase *Scenario Interviews* (Appendix F) were done for to take expert opinions on each scenario. To ensure that the use of scenarios is fruitful it is of key importance for stakeholders to participate in their creation. To take opinions of all stakeholders Interview Schedule 4 was used. Although results of previous phases are very useful, experts will often help provide insights and new perspectives on a subject. The input of experts and stakeholders is thus of key

importance to a successful scenario analysis. Identifying the right experts may well present a challenge. Experts with different perspectives and backgrounds may well be needed, as with different stakeholder perspectives (Iversen, 2006).

For this reason, sampling decisions made for this study fit into what is referred to as purposive sampling in qualitative research. In purposive sampling, the informants are selected according to some characteristic. As the name suggests, it is about selecting a particular sample on purpose. Patton (2002) identifies sixteen cases of purposive sampling, one of which is maximum variation. In this type of sampling, researchers are proposed to select a wide range of variation on dimensions or factors theoretically linked to the research question being addressed. Maximum variation is particularly recommended when the sample size is too small and sampling patterns like random sampling become too dangerous to represent the population. For the present study to obtain variation for sample 13 Participants selected in the field of education from different majors as seen in Table (8). As suggested by Patton (2002), it is seen in the Table 7 that the participants varied in order to include informants with various departments, qualifications and experiences.

In addition to scholars practitioners selected who know how policies translate into practice. They are the ones who deliver the valuable thinking behind the scenarios with up-to-date knowledge of how schooling and learning takes place.

In the light of above mentioned there are some points in this present study researcher like to highlight. First of all scenario narratives were written by researcher as representative of sub-themes for each intersection region of every unique scenario. Although researcher spent great effort to select participants from different backgrounds and information rich people in some points interviewees couldn't elaborate on scenarios and these points researcher went back to Desk research results and include policy statements to extend final scenario narratives. So one cannot say that scenarios were written only based on interview results. This was an interview process go back and forward between pervious Phases

results and Scenario interviews. For instance without conducting Phase 1 it would be impossible to understand and interpret participants perceptions for Scenario 3 and 4. Moreover initial phases gave valuable insight to develop creative scenarios for the future.

Table 8: *Scenario Interview Participants*

# of Participants	Title	Gender	Major
Scce 1	Assistant Prof.	Female	Gifted Education
Scce 2	School Founder	Female	Business Administration
Scce 3	Prof	Male	Chemistry
Scce 4	Assistant Prof.	Female	Gifted Education
Scce 5	School Principal	Female	English Language
Scce 6	School Principal	Male	English Language
Scce 7	Assistant Prof.	Female	Curriculum and Instruction
Scce 8	School Principal	Female	Classroom Teacher
Scce 9	Prof	Male	Instructional Technology
Scce 10	Assistant Prof.	Male	Educational Administration
Scce 11	Assistant Prof.	Female	Curriculum and Instruction
Scce 12	Prof	Male	Educational Administration
Scce 13	School Founder	Male	Computer Engineer

3.4.2 Data Collection Instruments and Procedures of Phase 3

As mentioned before results of previous phases are one of the main data source for scenario creation. Instrument and procedures used during these phases mentioned in previous headings. There is just one point researcher highlight as a critical point kept in mind during scenario creation procedure. Although researcher spent high degree of care and diligence in every phase of the study there are some special points for Trend Analysis need to keep in mind during scenario creation. Studying trends is not straightforward and the future will often not turn out to be a smooth continuation of past patterns. For this reason one can sometimes be just plain wrong like Irving Fisher, Professor of Economics at Yale University. He stated, “Stocks have reached what looks like a permanently high plateau” (OECD, 2006). His statement done before the 1929 Wall St. Crash and soon after this claim one of the biggest economic crisis occurred in the U.S.. In addition to that risk nor is it guaranteed that the trends that were important in the past will remain influential in the future; emerging trends barely visible at the moment may become of central importance in the future. When aircraft were just beginning to become operational, the military leader who was to become Commander-in-Chief during WWI - Maréchal Ferdinand Foch, École Supérieure de Guerre- declared “Airplanes are interesting toys but of no military value” (OECD, 2006). One can infer that Foch couldn't foresee the efficacy of planes for military and thought ordnance remain same.

During scenario creation researcher considers all that risks and tried to be as clear as she can in each scenarios essence. In other words researcher intentionally described scenarios in philosophical and political way rather than to be prophet of some current hot topics. For instance 21st century skills, Project based learning or tablet PC distribution to schools are current hot topics and they are subject to change in time or in other words they would be outmoded views in the near future. On the other hand respect to diversity in schools or focusing on economic aspect of education are big ideas that never disappear.

Second data collection instrument for the Phase 3 was Scenario Interviews. Bogdan and Biklen (1992) indicate that interviews aim to gather data from participants' own words in order to develop insights on how they interpret a situation. Similarly, Cohen, Manion and Morrison (2000) maintain that interviews enable participants to discuss an issue from their own point and to indicate their attitudes, beliefs and opinions. Although interviews considers as subjective when compared to questionnaires it allow for a deeper understanding and analysis of a case, and have a higher response rate (Esterberg, 2002). These points are highly important in the Scenario Interviews of this study because the aim is to lead variety of experts put their comments on scenario framework.

Bogdan and Bilken (1992) suggest starting interviews with a small talk that includes a search for finding common grounds with the interviewee. In Scenario Interviews researcher always used a friendly small talk as icebreaker. In this small talk researcher mentioned about interviewee's studies on related issues and informed participant the purpose of the interview. During interviews researcher mentioned the framework of each and every scenario respectively and take comments of participants.

These questions (Appendix F) were aimed to enable participants to obtain a discussion on given scenario case, refer back to their experiences, share their feelings, elaborate on dimensions of scenarios and contrast different aspects of the each case. Scenario interview procedure was more challenging than other interview process that conducted in this study because researcher's mastery and capability is dominant in this process. Researcher role is not a passive receiver of responses in these interviews she needed to debate on cases sometimes to encourage participant be more creative since, scenario interviews are based on hypothetical situations and these are not meet any ones expertise directly. For this reason the interview process was piloted before implementation, and the piloted interview was recorded so that the researcher/ interviewer had the chance to review her interviewing skills and evaluate if the cases are luminous enough.

Furthermore Bogdan and Bilken (1992) state that qualitative interview

leads with relevant probes for exploration of details and for clarification of responses. In addition, the funneling technique was used to narrow down the topics under discussion and to refer to a previous point mentioned by the interviewee. Researcher added many prompts (reminding relevant issues) and probes (asking for more information or specification) when necessary without disturbing the nature of semi-structured interviews. Table (9) is representing the themes mentioned by each participant.

Table 9: Themes Mentioned by Participants for Scenarios

	Scce 1	Scce 2	Scce 3	Scce 4	Scce 5	Scce 6	Scce 7	Scce 8	Scce 9	Scce 10	Scce 11	Scce 12	Scce 13
Scenario 1													
Attitudes, Expectations and Political Support					X				X			X	
Goals And Functions		X	X		X	X	X	X		X	X	X	
Organizations and Structures					X	X	X	X		X			
Geo-political Dimensions		X						X	X	X			
Scenario 2													
Attitudes, Expectations and Political Support	X			X	X	X	X	X	X		X		X
Goals And Functions	X		X	X		X	X	X	X	X	X	X	X
Organizations and Structures	X	X		X	X		X	X	X	X	X		X
Geo-political Dimensions	X	X		X			X	X	X	X	X	X	X
Scenario 3													
Attitudes, Expectations and Political Support	X			X				X	X	X	X		X

Goals And Functions	X		X	X	X	X	X	X	X	X	X	X
Organizations and Structures	X	X	X	X	X	X	X	X	X	X		X
Geo-political Dimensions						X	X	X	X	X		

Scenario 4

Attitudes, Expectations and Political Support	X											
Goals And Functions		X					X					X
Organizations and Structures												X
Geo-political Dimensions										X		

3.5. Data Analysis

According to Boglan & Biklen (1998) “data analysis is the process of systematically searching and arranging the interview transcripts, field notes, and other materials that you accommodate to increase your understanding of them to enable you to present what you have discovered to others” (p.157). The challenge of qualitative inquiry is to make sense of massive amounts of information, to reduce the volume of data and to identify significant themes (patterns) that present what the data reveal.

Data analysis for interim and fieldtrip interviews was done after the data gathering procedure because there was no concern for overlapping of the data in these processes. On the other hand data analysis for trend interviews and scenario interviews done immediately after the conducted interviews for considering the theoretical saturation had been reached or not.

For all interviews researcher captured voice memos on her smartphone during interview and transform the voice of a single speaker into written words. For this process “*Dragon Dictate*” program was used to convert speech to text. Dictating to the computer allows users to write their ideas freely as they think. This program allows placing the ideas in the correct order by moving text, copying, pasting, cutting, deleting and inserting tables, images and other elements. All recorded interviews were transcribed by the researcher herself.

The transcribed interviews were analyzed by the way of content analysis. The main purpose of content analysis is to reach the concepts and relations, which will indicate the data collected. Moreover content analysis involves conceptualizing the data, then organizing them according to those concepts and determining the themes (Mason, 2002; Patton, 2002; Strauss & Corbin, 1990; Yildirim & Simsek, 2000). Analysis procedure for Interim, Fieldtrip and Trend Interviews characterized as basically inductive approach (post-defined). On the other hand in the Phase 3 “Scenario Creation” we had scenario frames that come out by the previous data and OECD Scenario dimensions. For this reason in

Scenario interviews researcher used provisional coding (pre-defined) to obtain consistency and relevancy between OECD scenarios and the present scenarios.

Data analyzing process is not a smoothly process some new sub-categories came out while categorizing the transcribed data, as well. Yildirim and Simsek (2000, p. 164) stated this process as "...during the data coding, the researcher is generally required to read the data sets for a couple of times and work on the emergent codes again and again."

Mulhall (2002) stated a very critical point: question of when analysis should begin for observations. She stated that some ethnographers attempt to avoid any explicit analysis during the fieldwork stage. However, Spradley (1980) stated a process whereby data collection must be followed by a period of analysis that leads to more focused fieldwork. Moreover, Mulhall (2002) mentioned that "any writing, both in the field and hereafter, is a representation or a construction of events by the author. Thus however, hard we try to be objective such descriptive accounts are theorized, and ethnographers choose to focus on certain activities, key events, and their reactions to them. In this way unconscious analysis of events is constantly occurring as field notes are written" (p. 310).

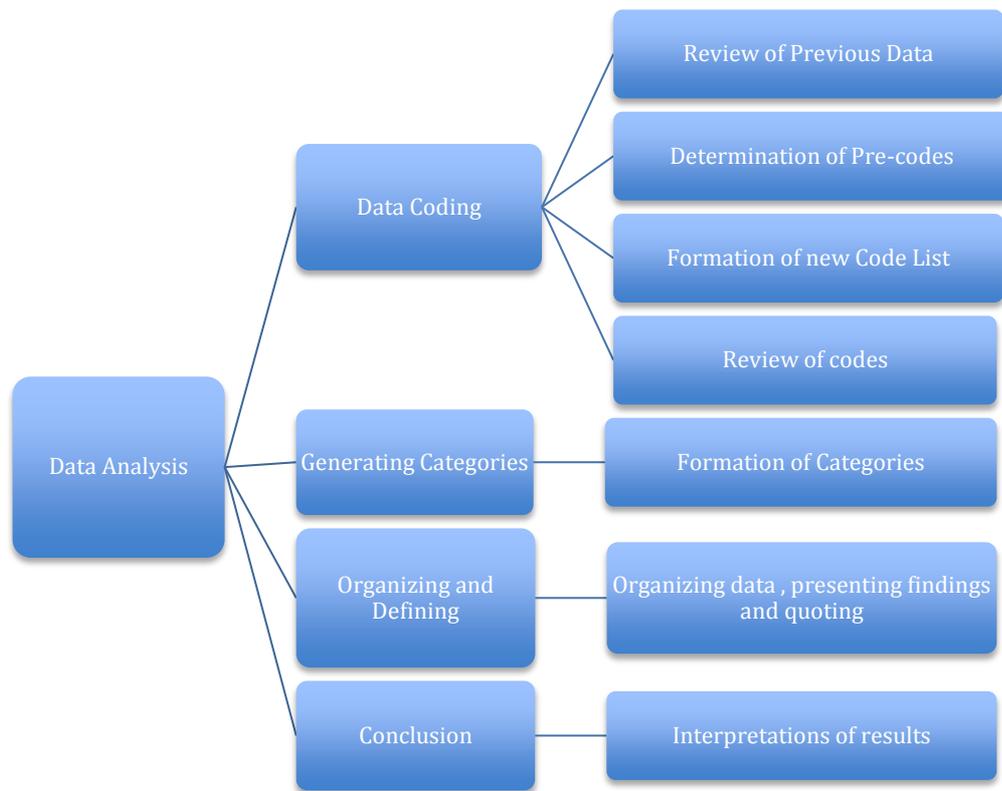


Figure 25: Data Analysis Procedure for Interviews

In this study although researcher was gone to field to record about social and physical setting there isn't any predetermined theme for observations. This gave researcher a great flexibility to observe everything around the school and gain a fully understanding about school setting to get ready for interviews. Finally, data gathered by observations were analyzed by content analysis procedure and used to support interview results. Details of observations represented in Appendix (D).

3.6 Trustworthiness

The trustworthiness of qualitative research generally is often questioned by positivist paradigm, for reason of their concepts of validity and reliability cannot be addressed in the same way in naturalistic study (Shenton, 2004). Furthermore, Shenton (2004) stated that many naturalistic investigators preferred to use different terminology to distance themselves from the positivist paradigm. For instance Guba (1981) proposes four criteria that should be considered by qualitative researchers in pursuit of a trustworthy study. These are Credibility, Transferability, Dependability and Confirmability of the study.

3.6.1 Credibility (Internal Validity)

Credibility refers to confidence in the truth of the findings in qualitative research. There are many procedures that explained at the below followed by researcher to increase credibility of this present study.

Prolonged Engagement: According to Lincoln and Guba (1985) Prolonged Engagement is to spend amply time in the field to learn or understand the culture, social setting, or phenomenon of interest. This involves spending sufficient time observing various aspects of a setting, connecting with a range of people, and developing relationships and rapport with members of the culture. To this attempt researcher stayed in touch with participants and go back and forward through participants and participants own interviews. In addition to that detailed prompts added to elaborate on questions. Moreover researcher intentionally spent long time for the Phase 1 ‘Pre-study’ to rise above her own preconceptions. In order to that to abstain from biases or preconceptions and ideas researcher organized a field trip to abolish a regular school concept in her mind.

Persistent Observation: Lincoln and Guba (1985) stated that prolonged

engagement provides scope, persistent observation provides depth to study. They described this idea as “if the aim of prolonged engagement is to render the inquirer open to the multiple influences - the mutual shapers and contextual factors - that impinge upon the phenomenon being studied, the purpose of persistent observation is to identify those characteristics and elements in the situation that are most relevant to the problem or issue being pursued and focusing on them in detail.” (p. 304). For the sake of present study, researcher spent 2 years for preparation, that is (reparation for research and gain understanding to related concepts before she started conducting the procedures of the actual study. Additionally, for a deeper investigation last 20 years reports (OECD, WTO, UNESCO etc.) were examined and every result of the interviews supported by quantitative data. Adding this document work, researcher had done a keen review of documents she -during research process- always followed ways to keep in touch with relevant organizations to elaborate on issues such as, researcher attained Waldorf workshops in Sunbridge Institute, NY., Conference of University of Connecticut Neag Center for Gifted Education and Talent Development on Differentiation, Sec-Bir (Sosyoloji ve Egitim Arastirmalari Birimi/ Sociology and Education Research Unit) meetings in Bilgi University, ERG (Egitim Reformu Girisimi/ Education Reform Initiation) meetings in Sabanci University. Finally, variety of scenarios searched to understand how to write internally consistent scenarios.

Triangulation: Triangulation involves using multiple data sources in an investigation to produce understanding (Lincoln & Guba, 1985). Denzin (1978) and Patton (2002) identify four types of triangulation and the implications of them presented at the below:

(1) *Methods triangulation:* This method indicated checking out the consistency of findings generated by different data collection methods and in this study observation, interview and desk research was used for the sake of method triangulation. Using these method provide elucidate complementary aspects of the

same phenomenon.

(2) *Triangulation of data sources*: This method requires examining the consistency of different data sources from within the same method. Aiming this, researcher collected data over a prolonged period and from a wide range of participants. As considered there are 3 phases in this study and there are many people in the field of sociology, educational science and other fields that contributed to the study.

(3) *Analyst Triangulation*: Using multiple analysts to review study (findings, design etc.) or using multiple observers and analysts is the essence of this method. In the present study researcher strengthened her research design and arguments in the light of the comments made by experts and colleagues.

(4) *Theory/perspective triangulation*: Using multiple theoretical perspectives to examine and interpret the data is not a case for this study because the aim of the study is not based on a theoretical framework.

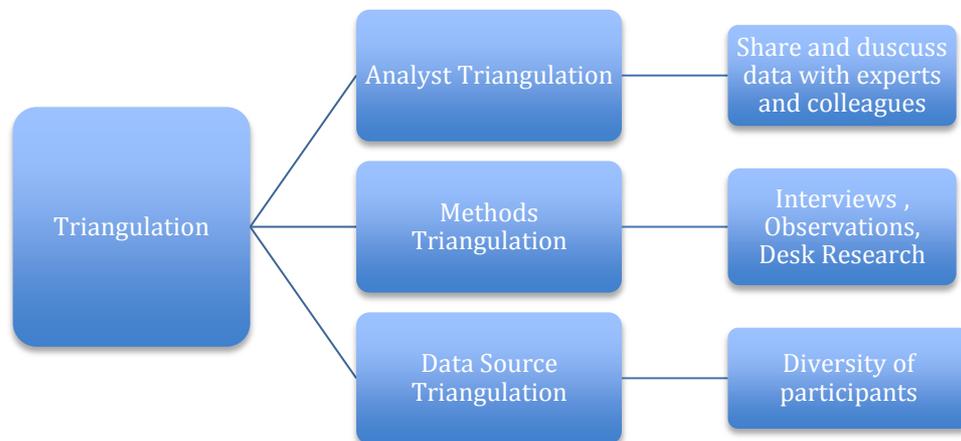


Figure 26: Triangulation Procedure of the Study

Peer debriefing: Lincoln and Guba (1985) stated "It is a process of exposing oneself to a disinterested peer in a manner paralleling an analytical sessions and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind" (p. 308). Especially in setting interview questions, interview codes and data analysis, and writing scenario narratives required experts to review process.

Referential adequacy: This refers identifying a portion of data to be archived, but not analyzed. The researcher then conducts the data analysis on the remaining data and develops preliminary findings. The researcher then returns to this archived data and analyzes it as a way to test the validity of his or her findings (Lincoln & Guba, 1985). To understand supportive facilities of informal learning environments and open educational resources to education Child and Science Museums (#17 museums and over 3000 photos) were visited. These museums are Brooklyn Children's Museum, New York Hall of Science, New York Historical Society Children's Museum, Children's Museum of the Arts, Children's Museum of Manhattan, Liberty Science Center, Smithsonian National Museum of Natural History, Port Discovery Children's Museum, Maryland Science Center, Living Classrooms Foundation Museum, Please Touch Children's Museum, Philadelphia, Free Library Children's Department, The Academy of Natural Science of Drexel University, Boston Children's Museum, Explore & More Children's Museum, National Museum of Play and Exploratorium. In addition to that data of literature review and informal conversational interviews during very beginning of the study is used for referential adequacy purposes.

Member Checks: This is a process when data, analytic categories, interpretations and conclusions are tested with members of those groups from whom the data were originally obtained (Lincoln and Guba, 1985). As far as participants approved to do check interview transcriptions sent and obtained feedback of participants.

3.6.2 Transferability (External Validity/Generalizability)

Transferability procedure considers showing that the findings have applicability in other contexts. The responsibility of the investigator to ensure that sufficient contextual information about the fieldwork sites is provided to enable the reader to make such a transfer (Lincoln and Guba, 1985).

Thick description: Thick description is mentioned by Lincoln and Guba (1985) as a procedure of achieving a type of external validity. By describing a phenomenon in detail another one can evaluate the extent to which the conclusions drawn are transferable to other times, settings, situations, and people. For transferability, researcher put enough detail according to study procedure (Fieldtrip- variety of observations, Case study- reason and criteria, Trend Int.- data sources, Scenario Int.- Dimension). This examination can help people who would like to use this study as a pre- policy research and transfer the findings to practice. Furthermore similar steps of OECD scenarios and scenario topology were followed for relevancy. Researcher roles were also determined and depicted in Figure 17. Detailed information of participants, observed schools and data gathering procedure were given in texts. Both inductive and deductive ways to data analysis were mentioned in data analysis section and rationale behind following some particular procedures was also stated.

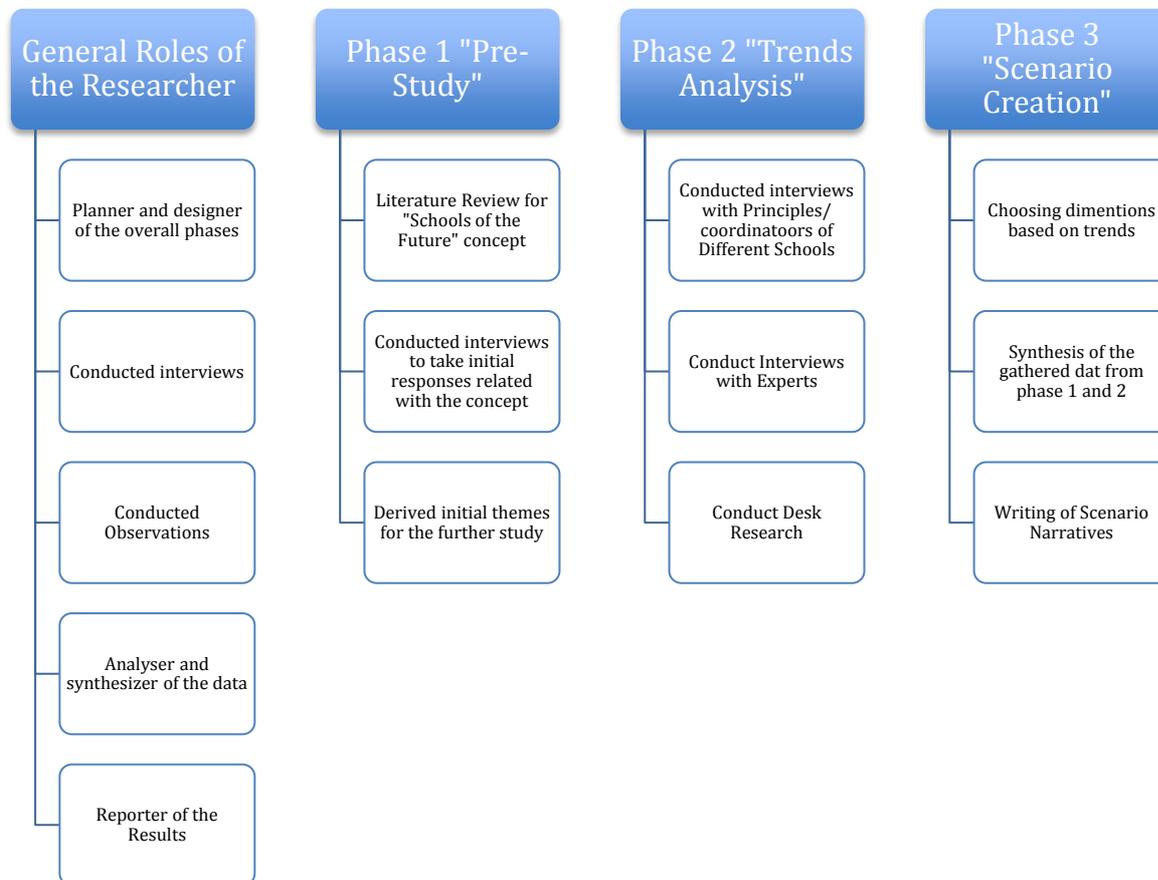


Figure 27: Roles of the Researcher

3.6.3 Dependability (Internal Reliability)

Dependability is indicating that the findings are consistent and could be repeated. In order to address the dependability, study processes should be

reported in detail, thereby enabling a future researcher to repeat the work. To follow this procedure inquiry audit technique is used to double check whether the process is clear enough to other researchers or readers.

Inquiry audit: Audits examine both the process and product of the research study. The purpose is to evaluate the accuracy and evaluate whether or not the findings, interpretations and conclusions are supported by the data. In this study one Professor was examined the research as inquiry audit. Researcher regularly met with him to interpretation of data.

3.6.4 Confirmability (External Reliability)

Confirmability - a degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest. Confirmability which involves the strategies used to limit bias in the research, specifically the neutrality of the data not the researcher. This can be enhanced through the researcher being reflective and keeping a journal, peer review such as asking a colleague to audit the decision points throughout the process and checking with expert colleagues about ideas and interpretation of data, checking with participants about ideas and interpretation of data, and having a team of researchers. Peer review is a strategy for ensuring construct validity (Yin, 1994). Another researcher will review and give comments on the research. 4 different colleagues of researcher did peer review. In this process especially Interview Codes and Data analysis procedure was reviewed. Last but not least all interview questions were reword by four colleagues that have Ph.D. degrees.

3.7 Limitation and Delimitation of the Study

The main limitation of this study is the main data source. Despite that information rich and wide variety of participants were selected majority of the data based on their perceptions. There can be different implications or interpretations of issues pointed out in this study for these reason all findings were supported with a keen literature review and statistical research. In addition to that for gathering data according to first elaboration of schools of the future case study design was used. Although this design limited us to generalizability of results it provided an in depth analysis of the case. Furthermore, only alternative schools were examined purposefully. Since it was thought that perceptions of alternative schools educators will slightly be different from traditional ones. This study is also limited with the K-8 grades of education system.

In addition to that points there are some general points that limits this study. An education system has several core policy domains that correspond to various system functions and together keep the system running. These policy domains include laws, rules, and regulations that determine how teachers are recruited, deployed, paid, and managed; how fiscal resources are allocated and spent; how schools and other learning institutions are established and supervised; how students are taught, treated in schools, and assessed; and how universities and other tertiary education institutions are organized, accredited, and financed. The quality of these policy domains and who is accountable for them are critical questions for education reform (World Bank, 2011). In this study funding issues, technical infrastructure and facilities, community and parental support were not discussed. This study just focused on how would K-8 education institutions organize in the future. This study is limited with K-8 because of the expectations from territory education is also remarkably changed and giving the link between work life and access to higher education could make this study more and more confusing.

This study did not focus on the teachers' positions in the system and this is

one of the main limitation. For this reason although dimensions of OECD scenarios were used, the last dimension that is the teaching force, was ignored to limit the scope of this study. Professionals working in schools are clearly fundamental to the future. The quality of learning and the success of reform and innovation depend crucially on teachers. Teacher quality, of individual professionals and of the force as a whole, has risen in profile and priority as a result of a number of diverse factors. The profile, role, status, and rewards of teachers differ significantly between the scenarios, and some imply a degree of change both towards and by teachers that may well prove uncomfortable to them and to society. ‘How to devise new models of teacher professionalism and organizational roles, in ways that enhance the attractiveness of the job, the commitment of teachers, and the effectiveness of schools as learning organizations? How to attract new blood into the profession?’ are the questions that this study did not to seek to answer in the present study.

CHAPTER IV

RESULTS AND DISCUSSION

*“I like dreams of the future
better than the history of the
past”*

Thomas Jefferson

The purpose of this study is to make predictions about possible schools of the future. As a consequence of this investigation, the present research aimed to reveal the opinions of experts on schools of the future. Using the methodology outlined in Chapter III, a large amount of data was gathered from various data sources and instruments.

The following research questions and sub-questions were investigated throughout the study:

3. In what ways will schools be evolving in the future?
 - 3.1. What are the perceptions of practitioners’ in the field of education on schools of the future?
 - 3.2. What are the major trends that shaping the future K-8 schools in Turkey?
4. What are the possible scenarios for the future K-8 schools in Turkey under consideration of globalization and technology?

4.1. Perceptions of Practitioners on Schools of the Future

For this research question Phase I of the study is designed. In this phase interim and fieldtrip interview, and fieldtrip observation results were used. In Interim interviews five participants attained study in a case school. On the other hand in fieldtrip interviews there are nine-teen participants attain to study. Figure (20) depicts the Themes and Sub-themes of the data analysis. These themes and subthemes are the driven by quantification of qualitative data.

4.1.1. Results of Interim Interviews

First of all interim interview results will be discussed. These interviews were conducted in a case school and data gathered form two administrators and three teachers. Analysis of the data indicated most frequently mentioned issues in relation to perceptions of schooling. Data were categorized into three themes: (I) Perspectives of Participants in terms of Education System, (II) Future Perspectives of Participants and (III) Contribution of International Accreditations

4.1.1.1. Perspectives of Participants In Terms of Education System

It was meaningful to gather the information about how teachers perceive the education system of Turkey since a school cannot be free from the whole system. When the transcribed data was analyzed, it was found out that teachers have mainly negative perceptions about the education system.

Under this category results indicated that there is a consensus about the current system is not satisfying the needs of educators and educators also mentioned about the consequences of the system that effects students.

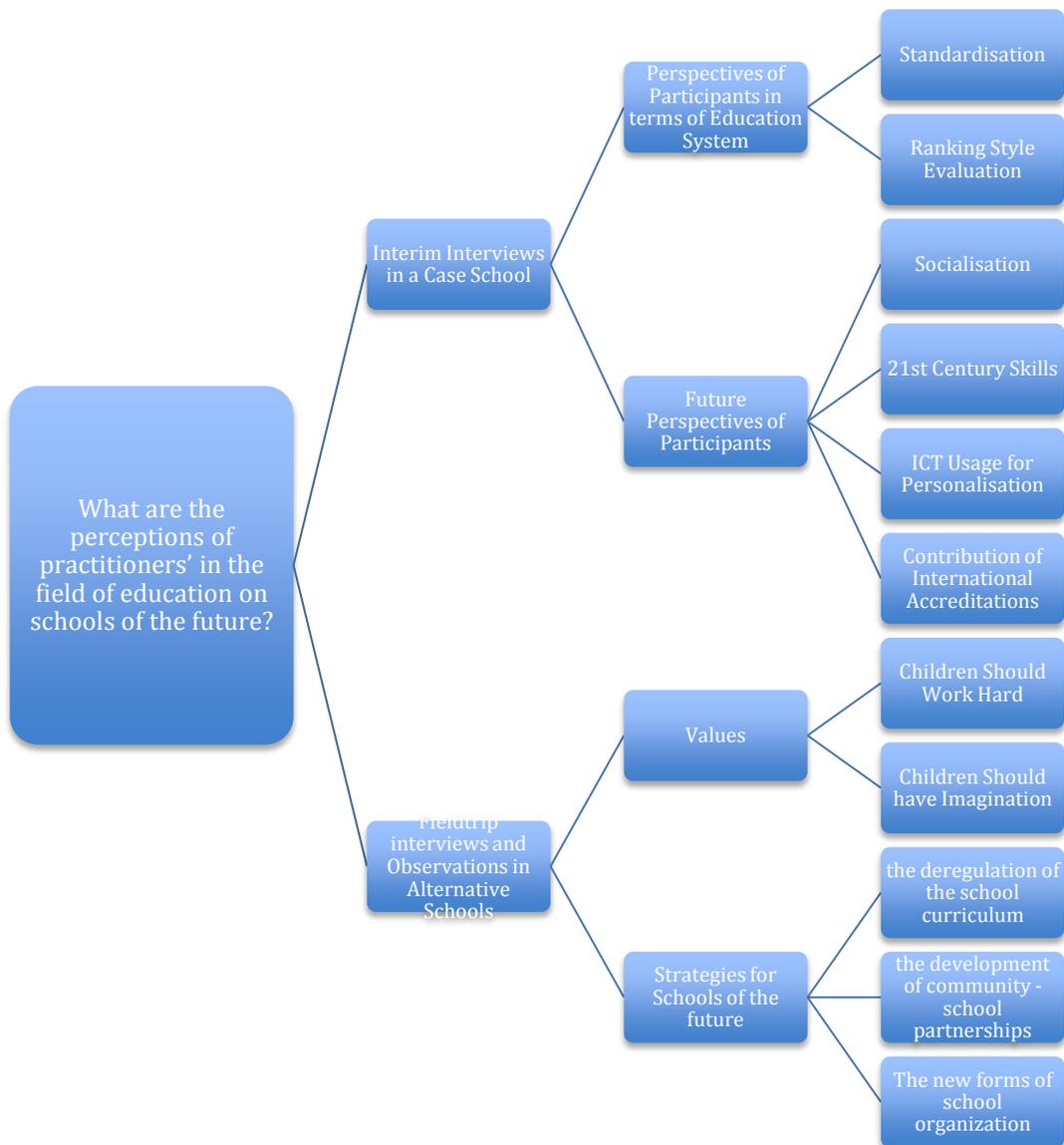


Figure 28: Overview of Research Question 1

Researcher inferred that dissatisfaction is a natural effect of the industrial paradigm of education. Despite the many changes that have taken place in schools over recent decades, the concern remains that very little has changed about the place called school in its basic structural, organizational and behavioral characteristics. Many of the school buildings are the same as in the first half of the 20th century or before. In this point one can pose the question of how well adapted to the learning needs of the 21st century in same environment as 20th century.

Some participants have referred to the 'factory model' of schooling that grew out of the industrial societies of the late 19th and earlier decades of the 20th century. This is characterized as a school mirroring the mass production methods of the industrial era that produced it, turning out a future workforce for the most part with basic skills and compliant attitudes. Similar to OECD (2001) Report mentioned, one of the participants argues that there is a paradigm shift in the world in terms of education. He states that Learning is no more a work of teaching as it is utilized in industrial factory model, but it will be a process of discovering, searching and finding. The old industrial paradigm would 'mass manufacture' plants using a standardized, uniform distribution of elements but the new paradigm treats each one individually.

We might first shortly discuss about what we mentioned as industrial paradigm of education with using the analogy of agriculture. Long time ago people farmed and schooled individual by individual. Ogilvy (2006) stated that a farmer walking his fields could treat different plants differently depending on an up close appraisal of what each plant needed. The teacher in the one room schoolhouse could treat students individually because s/he knew them each as individuals. Then the industrial paradigm took over, both in agriculture and in education. Individual-by-individual craftsmanship found inefficient and mass manufacturing was started for both plants and students. In related with this issue Ogilvy (2006) argues that industrial agribusiness worked pretty well at increasing crop yield but mass manufacturing students according to an industrial paradigm

was less successful. It seems that students are less responsive to standardized procedures than plants. One size/dose does not fit all, whether we're talking about fertilizer or arithmetic. Moreover, all participants found today's education system ignore the uniqueness of learners and put them in to one category under the mass manufacturing. One participant stated that the education system of today is mechanic and I believe that in the near future education system will be an organic structure.

It is well known that the industrial paradigm works with economies of scale: the more widgets you produce using the very same elements and procedures, the lower the cost per widget. But now industry itself, in our new information era, is yielding to what some call a post-Fordist paradigm. Using computers and programmable robotics, the manufacturing facilities are achieving economies of scale with much shorter runs. They call it adjustable manufacturing (Ogilvy, 2006). One participant stated, The idea of measuring leading indicators of instructional improvement does not suggest mandating a particular curriculum, instructional approach or way of organizing schools. Even if we had better measures of success or failure, school-by-school or student-by-student, it is not clear that we know what to do with that data. Ogivy (2006) claims that we probably know more about what it takes to grow asparagus under different conditions than we know about what it takes to grow young minds under different conditions. Participants also indicated that schools must be places that celebrate differences. One mentioned that teachers are not happy with the one-size fits all approach and the differentiated curriculum is a need to meet demands of learners. And she stated that In the near future differentiated curriculum will take place and we will have one million different curriculum for one million student. Although this seems so assertive according to her point of view this is possible if the great majority of education providers will be in consensus on respect to diversity in education. So as one participant claimed before the mission of public education can shift: from industrial era standardization to information era customization. In the light of these results this can speculate like information era farmers,

information era educators can afford to treat each student differently, and the differences that make a difference are not only differences in age, income, ability and differences in learning styles.

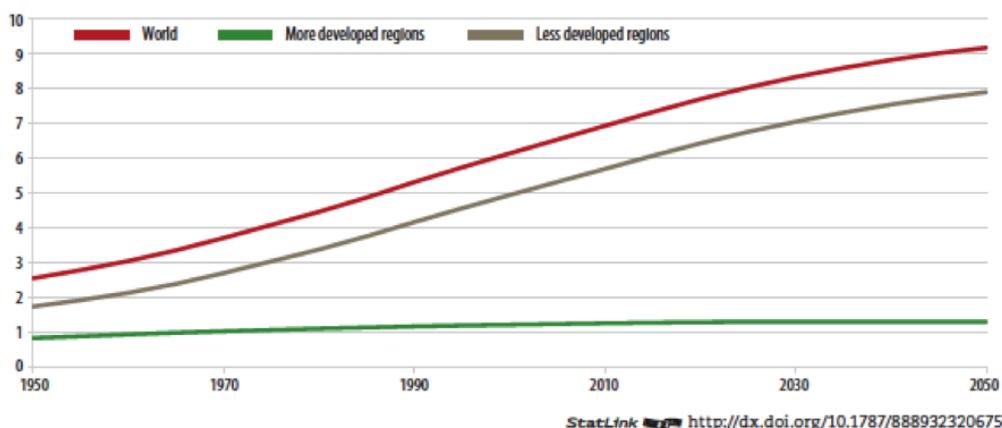
Another result of the study indicated the current problems because of the ranking style evaluation procedures. Participants mentioned that today's school system is only celebrating some basic skills that are measurable on standardized tests. Unless measuring these skills has great amount of controversies, system is strongly advocate measuring them in standardized tests. One participant stated that formative evaluation at the heart of educational progress and individualized learning and helpful to provide frequent feedback as the means of building further learning progress. Schools, teachers, and students alike require such information to identify attainments made and to expose needs. In addition to that one of the participants stated that,

Our main educational focus must be encouraging students to go as far as they can. For this aim we need to do formative assessment and give accurate feedbacks to students. Evaluation must be a totally individual process. Comparison, competition and ranking in education are not helping students to grow. These are only quantitative indicators to evidence the success of a system not a student. When you just do quantitative evaluations seminal aim of evaluation is missing. For instance a student got 70 in an exam does it means anything? No, teachers need to give feedback on the result. That's the thing teachers never do.

In this perspective researcher can say that this kind of quantitative data is also serving for the system survives. Because, for many decades, education was managed according to inputs: how many teachers? How much seniority did each teacher have? How many hours of in-service training? These were the criteria used to allocate resources and adjust rewards. Now, as in other industries like health care, the attention is shifting from inputs to outputs. For instance health care researches focus on outcomes research; in education, researches consider standards and accountability. This is strongly connected to perspective of quality

assurance of schools. As Ogivy (2006) argues what precision farming adds to the picture is a portrait of the way the measurement of outputs can be used in real time: just before dispersal. That way inputs could be adjusted in real time in order to treat each student uniquely according to his or her needs.

Although three of the participants mentioned about the negative sides of the evaluation one gave an interesting counter argument for the issue. She related this situation as very normal situation because of the population. We have 15 million students in our education system. For the reason of high population some says that this is not possible to make a change. Parallel with this result, OECD (2010) report also indicated we live on a very crowded planet and, more and more people are being born across the world, and many of us are living longer (see Figure 21). This point is highly remarkable but on the other hand when we consider growth of population, in the near future our population continue to increase. So if one approves the population rates as an excuse than system can never start an educational reform.



Note: More developed regions comprise all regions of Europe plus Northern America, Australia, New Zealand and Japan. Less developed regions comprise all regions of Africa, Asia (excluding Japan), Latin America and the Caribbean, plus Melanesia, Micronesia and Polynesia.

Source: United Nations Population Division (2009), World Urbanisation Prospects: The 2009 Revision.

Figure 29: Population Growth in OECD Countries

In sum population cannot be an excuse for the ranking style evaluation and its consequences. As we see there is a great tendency to incensement in population in the near future. Rather than finding excuses for the ineffective implementations there are some points we need to consider. In related with that we can ask the question: What is the meaning for education in this situation? Growing world populations have very clear resource implications. Are governments investing enough to reach the Millennium Goal of primary education for all, given that the world population is set to rise a further 3 billion up to the middle of the 21st century? Or the population incensement will be the major excuse for every unsuccessful initiation.

4.1.1.2. Future Perspectives of Participants

The implications of 21st century transitions for schools in OECD countries Universal compulsory schooling provides a useful example of what it might mean to pursue policies aimed at encouraging 21st century transitions. Born in and bred to the requirements and practices of the industrial era, schools of the 21st century may be situated in a very different context. For instance, the full shift to a highly integrated global knowledge economy and society seems likely to entail significant revisions in the goals, role, and methods of schools, certainly for the advanced OECD countries. The figure at the below illustrate how the broad socio-economic context for schools might change (Miller, 2001).

In related with the change in the social context participants argue that For much of the 20th century, people tended to belong to large, clearly defined groupings with fairly clear moral, political and behavioral codes. National, class and religious identities were clearly articulated and widely shared, in good measure because of schools' influence. With this sense this can speculate that in the 21st century, socialization is likely to remain one of the main goals for compulsory schooling.

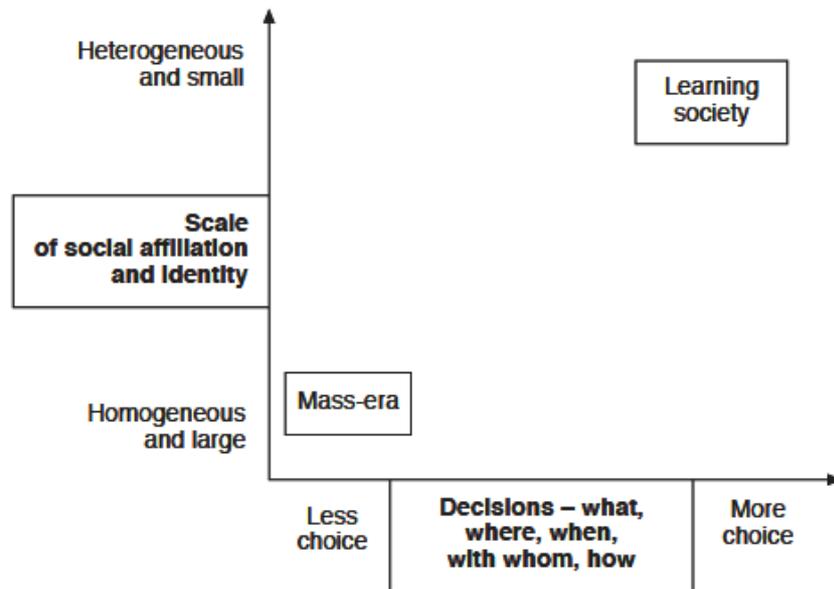


Figure 30: Changing goals – A new context for socialization (Miller, 2001)

The emergence of a learning society, however, suggests significant changes in the context, and hence the content, of socialization. The new goal is to equip children for a world where their sense of identity is derived from a diverse set of specific rather than general communities, and facing a vast range of active, self-generated, rather than passive, choices. This is radically different from the mass era, which put a premium on norms of national allegiance, common culture and obedience to hierarchical discipline. A learning society also implies a major break with mass-era schools as the main recognized source of what people know. In the light of these results we can say that the social context of the schools of the future is the most important indicator.

In addition to this results participants also emphasized on some survival skills that education needs to focus on. In literature these skills called 21st century skills as an umbrella term. Three of the participants mentioned about the importance of the fostering these skills in learners. Contrarily, one of the

participants mentioned that 21st century skills have always been the main aim to develop in all education history. This participant asked that Can you imagine raising a student without critical thinking and problem-solving skills or effective oral and written communication? We always aim to do that but last half of the century education broke down these skills in to sub-skills for the sake of measuring them on standardized tests.

Wagner (2008) also argues that

In today's competitive global 'knowledge economy,' all students need new skills for college, careers, and citizenship. The failure to give all students these new skills leaves today's youth at an alarming competitive disadvantage. Schools haven't changed; the world has. And so our schools are not failing. Rather, they are obsolete – even the ones that score best on standardized tests. This is a very different problem requiring an altogether different solution.

In this point there will be a link given between the final statement of first theme and this information. As mentioned before one of the participants criticized ranking based assessment and its results. This is obvious that there is a need for change our perspective according to assessment system (OSS, LGS etc.) because these high stakes exams are just ranking people whether they have the skills we expect or not. And in this point there is a question come up, 'if these measured skills are not the skills people need to be successful in life?' Moreover, Wagner (2008) interviewed over 600 CEOs, asking them the same essential question: Which qualities will our graduates need in the 21st century for success in college, careers, and citizenship? and his list of Seven Survival Skills is a distillation of the outcomes of these hundreds of interviews and adds validity to the case we are making. They are: Critical Thinking and Problem-solving, Collaboration Across Networks and Leading By Influence, Agility and Adaptability, Initiative and Entrepreneurship, Effective Oral and Written Communication, Accessing and Analyzing Information and, Curiosity and Imagination. This list is very similar with the interview results of this study and this means teachers are also aware of

the demands of future. In addition to that teachers are not giving as much value to information as they gave past. Because they are aware of the information is changing and information of learning how to learn is more valid. One of the participants stated that, Information is at the end of enter button, you can reach knowledge whenever you want, but information management and use of information skills are much more important."

Last but not least, all participants mentioned about the importance of ICT knowledge and its importance. Shostak (2009) mentioned about today's children, as digital natives and this generation want to receive information quickly and from multiple sources. Older people want to do things step-by-step, one thing at a time; younger people want to multi-task and use parallel processing. Digital immigrants (older generation) want independent work with a focus on the individual student; digital natives want to use simultaneous networks and collaborate. This can claim that older generation want learning to be serious; but new ones want learning to be fun. So, sometimes educators cannot reach the demand of students. In related to this arguments results indicated that technology will help educators to individualize learning environment. One participant stated that Let us ask, 'If we can apply technology to optimize our farming, individual plant by individual plant, then why can't we apply technology to optimizing our schooling, individual student by individual student? The key point for this individualization process will be technology'.

In addition to that one participant elaborated on what kind of changes or innovations can come in the future.

In the future, there is every reason to believe that we will have learning tools that will allow us to diagnose each individual student in ways that will permit us to treat each student, individually, every hour of every day, with just those educational tools and lesson plans best suited to his or her needs and aptitudes. We will have interactive educational computer games that will automatically diagnose each player's learning style. Such software will accommodate itself not only to so-called self-paced learning; it will also permit self-styled learning. Today's digital natives will have the

full support of ICT and their learning process will be totally different from ours. As we all know the nature of reaching information and the ways to reflect it is changed. The only thing stand still is the robustness in evaluation.

Finally in the light of results we can say that social context, 21st century skills and technology will be the most important indicators for the schools of the future. There is further study needed to describe details of social context and technology. Figure 20 described the themes derived from interim Interviews and these will be the map for the following phases of the study.

4.1.1.3. Contribution of International Accreditations

Under this theme we will briefly discuss the IB' s, EAQUALS' s and using ICT's contribution. One of the participants mentioned about the mission of their school. Their mission is 'creating positive difference with good education'. This is a short but intense mission and in their vision they mentioned about continuing education.

Participants were mentioned about IB's contribution to curriculum. IB is a non-profit organization and the organization works with schools, governments and international organizations to develop challenging programmes of international education (IB, 2011). This school is following IB- PYP (Primary Years Program) and IB Diploma Program. PYP for students aged 3 to 12 focuses on the development of the whole child in the classroom and in the world outside and participants stated that its core is based on international consciousness, it is focus on holistic learning, it supports natural curiosity and curriculum support inquiry/questioning of students'. On the other hand EQUALS is an international association of institutions and organizations involved in language education. Its aim is to promote and guarantee high quality in language teaching and learning (EQUALS, 2011). Participants stated that EAQUALS is supporting reflective

thinking and critical thinking skills. These two are supporting high amount of teacher education for staff. In addition to that this school is using tablet PCs since 2009 and participants stated that using ICT in education is capture attention of students' and increase motivation towards learning. Last but not least this school is designed their classrooms as thematic classroom to follow activities in curriculum effectively.

In sum this can be said that this case school found some the ways to reach 21st century's demand in: Focusing on differentiated instruction rather than 'one size fits all', following international accreditation procedures to rise its standards and increase the use of technology in school setting.

4.1.2. Fieldtrip Interview Results

In the light of above mentioned results, second part of this phase organized as a fieldtrip. Aim of conducting this part of study is to identify what is the perception of practitioners who works in alternative schools. Here the main point is to eliminate suggestions on 'learner centered education' implications and go deeper to what elements of these schools make or will make difference.

Fieldtrip interviews were done in order to explicit the issue of individualization of education that previous results highly emphasized. These Fieldtrip interviews gave us a broader understanding on what kind of perspective or implementations is needed to abolish dissatisfaction of the current system and go further to future. To find out the data interviews conducted with 7 teachers, 4 education coordinators, 4 principals and 4 academic advisors (N=19). These educators are from 11 different schools that reflect main characteristics of alternative education. Observations also conducted to validate our results and gain idea on social and physical setting of each unique school. Although the implications of individualization by the schools are different from each other their main philosophy is based on celebrating differences of learners and give equal

importance to all kind of skills. Briefly they emphasize putting the learner center of education. There are two main themes for this interviews (I) Values and (II) Strategies for schools of the future. Detailed description of social and physical environment of each school is stated in Appendix (D). In results section insights from observations and supportive data will mention under each theme.

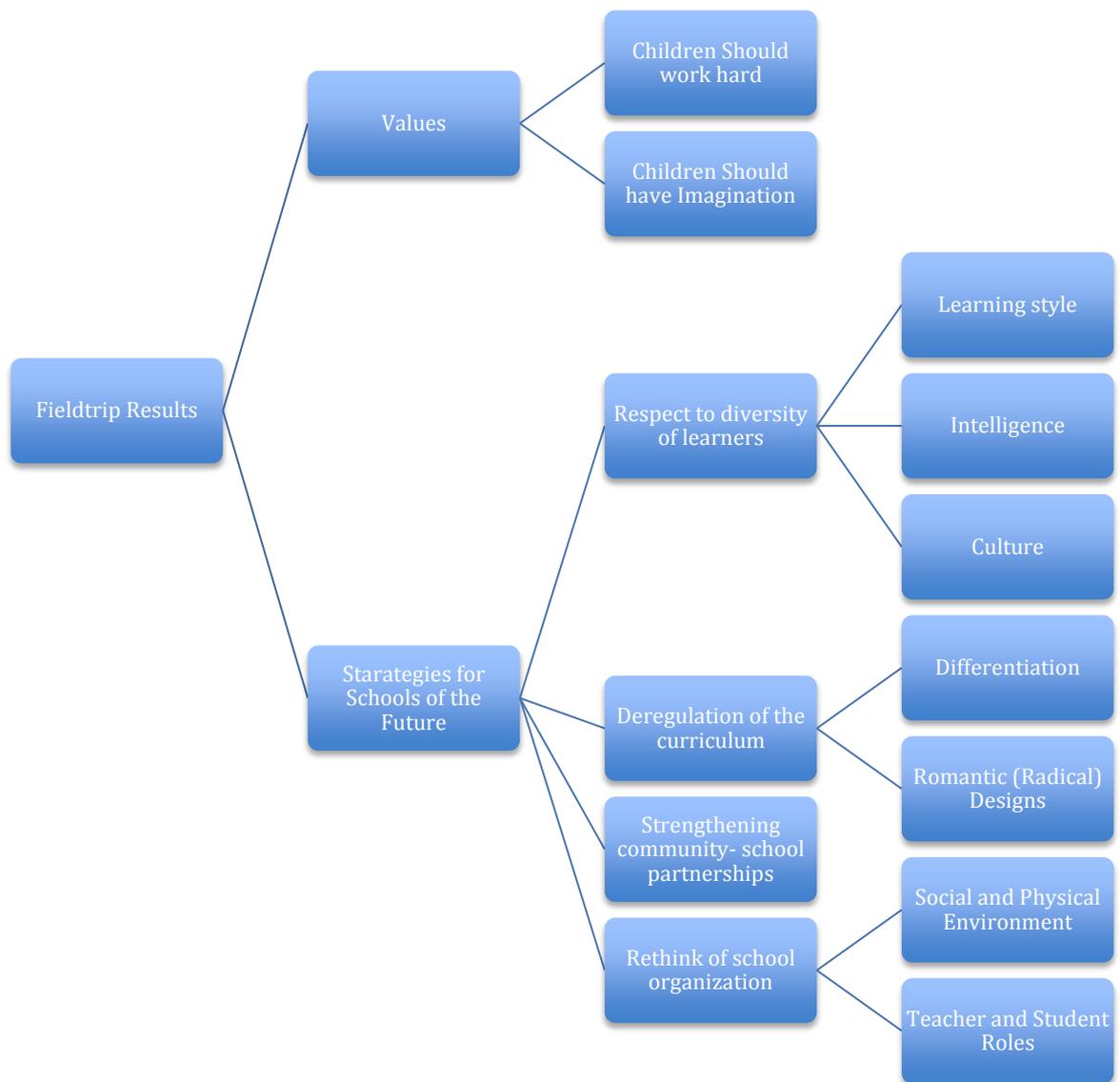
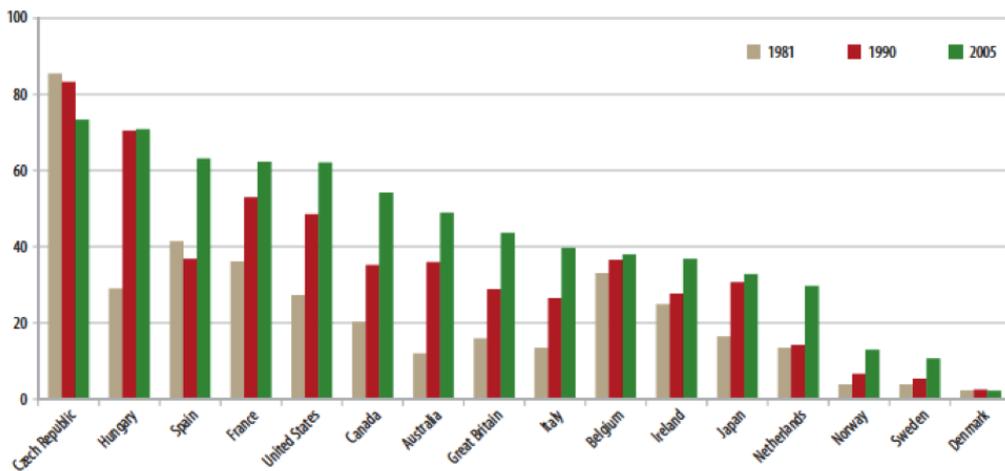


Figure 31: Fieldtrip Results of Study

4.1.2.1. Values

Results of the interim interviews indicated that there is a huge difference between values of the families whose child is attending an alternative school than other families. Values are core to society but by their nature are rigorous to measure. The school is one of the most important places where each generation acquires social norms and beliefs and a base of personal values for life. Nearly all participants mentioned about the challenges that are waiting for children in present and the near future. None of the participants foresee a brighter or easier tomorrow to children. Participants mostly argued that everyday expectations from children are getting higher and the hardness to meet the demand of families and economy for them. The discrepancy between families especially shows itself in terms of economic aspect of education. This means families who highly focus on ‘children should work hard’ are more solicitous about economic return of education.



StatLink  <http://dx.doi.org/10.1787/888932321473>

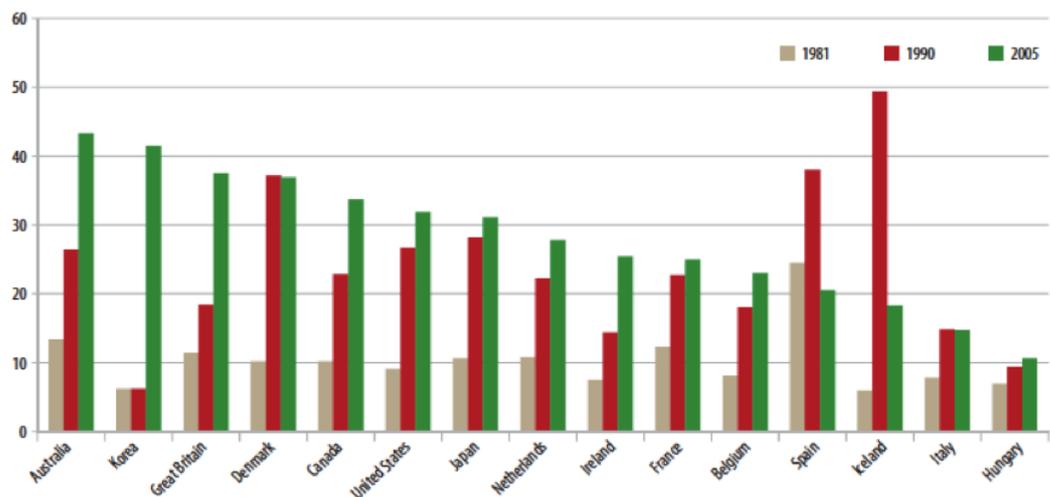
Source: World Values Survey (2009), Four-wave Aggregate of the Values Studies.

Figure 32: Children Should Work Hard (Percentage of respondents to the World Values Survey who believe that hard work is an important quality in children, in 1981, 1990 and 2005)

Parallel with interview results, in most OECD countries the proportion of populations who believe that hard work is an important quality in children has gone up since the early 1980s. Whether because we live in more competitive, achievement-oriented times or because there is greater belief in the meritocratic promise that talent plus hard work will translate into improved prospects, it seems that hard work in children is now valued more than in the early 1980s. The exceptions in the Figure 23 to this upward trend are the Czech Republic and Denmark, but their starting points are widely different: just under three-quarters endorse hard work in children as an important value in the Czech Republic compared with 2% in Denmark (OECD, 2010).

On the other hand participants mentioned that parents of their schools are prizing creativity and imagination instead of academic education. Although alternative education schools are not against to academic education they criticize the way traditional schools treat learners. Their difference is not ‘what to teach’ the difference is based on ‘how to teach’. Furthermore nearly all participants mentioned alternative education is totally against that one size fits all approach that kills children’s creativity.

In addition to above mentioned results OECD (2010) report indicates that imagination in children is also valued more than 20-30 years ago. In all the countries for which data is available, with the sole exception of Spain, the percentage of people who see imagination as important went up between 1981 and 2005, though 1990 was the peak year in some countries. As with hard work, the variation between countries is very large – from over 40% in Australia to just over 10% in Hungary. How far promotion of both hard work and imagination are compatible with one another is a matter for debate. It fits, however, with a more general pattern emerging from the World Values Survey findings: that we have rising expectations for children in general, finding more and more qualities important for them. The findings reported here may thus be part of the changing context and meaning of childhood in 21st century OECD societies, reinforced by smaller families with greater material resources for each child (OECD, 2010).



StatLink  <http://dx.doi.org/10.1787/888932321492>

Source: World Values Survey (2009), Four-wave Aggregate of the Values Studies.

Figure 33: Children Should Have Imagination (Percentage of respondents to the World Values Survey who believe that imagination is an important quality in children, in 1981, 1990 and 2005)

Finally this can be said that when one take a glance at bigger picture of society there seem to be shifts in what we think are important qualities in our children, illustrated here by the valuing of hard work and imagination. For education, a further question concerns how far this task should be viewed as primarily their responsibility or whether it is accepted that others, as well as schools, have an important role to play.

4.1.2.2. Strategies

Results of interviews indicated that by providing a supportive and flexible environment that focuses on the changing needs of students, schools can be places of both stability and challenge for students. To attain these ends interviewees pointed four strategies: (1) Respect to diversity of learners, (2) Deregulation of the

curriculum, (3) Strengthening community- school partnerships, and (4) Rethink of school organization.

4.1.2.2.1 Respect to Diversity of Learners

No one would ever say that all students are the same. Certainly every teacher confirms this idea. On the other hand regular schools treat students as if they were same. Students differ as learners in terms of background experience, culture, language, gender, interests, readiness to learn, modes of learning, speed of learning, support systems for learning, self-awareness as a learner, confidence as a learner, independence as a learner, and a host of other ways. Moreover, differences profoundly impact how students learn and the nature of scaffolding they will need at various points in the learning process (Tomlinson & Imbeau, 2010). One participant stated, All students have areas of strength. All students have areas that need to be strengthened and the main assumption is all students can learn. But, each student's brain is as unique as a fingerprint and students' learn in different ways at different times.

In this sense this can be said that there is variety of facets for mentioning diversity of learners. In the scope of Fieldtrip interview results, researcher just focus on learning style, intelligence and culture issues.

Learning style indicates a preferred contextual approach to learning. Learning styles include working alone or with a partner, in a quiet place or with music playing, in a bright room or a darkened environment, while sitting still or moving around (Dunn & Dunn, 1992, 1993; Gregorc, 1979). All participants mentioned the importance of knowing learning styles for effective instruction. They said that the main difference between 'learner centered schools' and others is starting from respect to diversity of learners in terms of their learning styles. Especially participants from Renzulli Academy, Nueva and Commonwealth School strongly emphasized the importance of learning styles for their

instructional design.

Second common mentioned subtheme for diversity of learners is intelligence. Diversity of intelligence can categorize under two aspects. Learners can be different in terms of their intelligence preference for example, verbal-linguistic, logical-mathematical, kinesthetic, interpersonal, intrapersonal, musical-rhythmic, spatial, analytical, practical, creative (Gardner, 1985; Sternberg, 1985). On the other hand they can be different in terms of their intelligence level. Participants from Renzulli and Sierra Academy, and Nueva, Hugo, Commonwealth Schools mentioned that they are collecting data of intelligence preference and level for differentiation of instruction. They stated that these data is helping them to use of flexible grouping (balancing like-readiness grouping, mixed-readiness grouping, grouping by interest, random grouping, whole class instruction, and individual/independent work) and a variety of instructional strategies (learning contracts, compacting, group investigation, complex instruction, interest centers, learning centers, tiered lessons, tiered products, graduated rubrics) that invite varying students to learn in a variety of ways. These sorts of classrooms are likely to be positive both for normal and gifted learners because they accept who these learners are, reflect an awareness of the specific achievement level of the learner at any given time, and provide learning opportunities that match the child's own achievement level and interests.

Finally, culture subtheme refers to learning that may be strongly shaped by the context in which an individual lives and by the unique ways in which people in that context make sense of and live their lives (Tomlinson and Imbeau, 2010). Participants from Sierra Academy, Hugo and Democracy Prep Charter Schools mentioned the endeavor of teachers to understand diverse cultures of the students they teach so they can achieve a more multidimensional understanding of the relationship between culture and learning of students. The common point of these schools is their location in low-income neighborhoods. Most of the student are came from different minority groups (immigrants, Afro-Americans and Latinos).

Last but not least this can be said that 'putting learner first' is not newly

invented, but requires a more conscious effort to analyze available data and make decisions about what is working and what needs to be adjusted. More conscious consideration and a larger repertoire of techniques can help educators to follow learner-centered education. Tomlinson and Imbeau (2010) suggested teachers to ask some questions for criticize themselves, as they are sensitive enough to diversity of learners. (1) How do I contribute to my students' awareness of their core similarities and their individuality? (2) How do I seek diverse perspectives on issues and topics in our class? (3) How do I help students learn to seek and value multiple perspectives on issues and topics? (4) How well do I understand my own culture and how it shapes my perspectives and practices as a person and as a teacher? (5) How do I ensure that all students' backgrounds, cultures, languages, patterns of communication, preferred ways of learning, and traditions are represented in our classroom's operation, curriculum, and materials? (6) How do I ensure that each student has equity of access to the highest quality learning opportunities? (7) How do I create group work that draws on the particular strengths of the group's members? (8) How do I ensure that every student has a significant intellectual contribution to make to the work of the class? These questions can help educators to figure out their position in the light of driven theme –respect to diversity of learners.

4.1.2.2.2 Deregulation of Curriculum

The curriculum of schools represents a powerful policy instrument affecting cultural formation, social cohesion and economic improvement. The main function of general curriculum of a country has always been to make out a skilled workforce committed to the nation (Kennedy, 2001). In Hudson Valley Sudbury School and St. Johns Episcopal Reggio Emilia Preschool there is no predetermined curriculum for learners. Learners decide their own paths in education. On the other hand participants from Waldorf School stated that they

have common curriculum framework for Waldorf School in the worldwide. In addition to that participants from other schools mentioned they are designing their own curricula by considering state standards. Finally almost all participants stated that standard curricula would not meet the demand of learners in the future. For this reason they suggested new approaches for traditional schools that are considering needs of learners.

Two-third of participants mentioned that in traditional schools curriculum has become a prescribed set of academic standards and instructional pacing has become a race against a clock to cover the standards. For the reason of overvaluing high stakes tests the aim of teaching has been reduced to raising student test scores on a single test. Academic advisors of Renzulli Academy stated that

...What is the impact of standards-based teaching on the quality of education in general?... Do the standards reflect the knowledge, understandings, and skills valued most by experts in the disciplines that they represent?... Does our current focus on standards enliven classrooms, or does it eliminate joy, creativity, and inquiry?... Do standards make learning more or less relevant to students?... If we are satisfied with positive answers, we can look at how to make adaptations to address the needs of academically diverse learners.

Finally Principal/ Director of Alternative Education Research Organization stated that

Teachers [in traditional schools] are confuse about opposing directions: They are admonished to attend to student differences, but they must ensure that every student becomes competent in the same subject matter and can demonstrate the competencies on an assessment that is differentiated neither in form nor in time constraints. For this reason in the future schools we need to deregulate curriculum to meet demand of diverse learners.

Results of interviews indicated that suggestions for deregulation of curriculum are classified under two subthemes (1) Differentiation and (2) Romantic/ Radical Design. Differentiation consists of the efforts of teachers to respond to variance among learners in the classroom. Whenever a teacher reaches

out to an individual or small group to vary his or her teaching in order to create the best learning experience possible, that teacher is differentiating instruction. Teachers can differentiate at least four classroom elements based on student readiness, interest, or learning profile: (1) content--what the student needs to learn or how the student will get access to the information; (2) process--activities in which the student engages in order to make sense of or master the content; (3) products--culminating projects that ask the student to rehearse, apply, and extend what he or she has learned in a unit; and (4) learning environment--the way the classroom works and feels (Tomlinson & Imbeau, 2010). Differentiation has no contradiction between standards-based instruction and differentiation. One participant from Renzulli Academy stated that

Curriculum tells us *what* to teach: Differentiation tells us *how*. Thus, if we elect to teach a standards-based curriculum, differentiation simply suggests ways in which we can make that curriculum work best for varied learners. In other words, differentiation can show us how to teach the same standard to a range of learners by employing a variety of teaching and learning modes. Choose any standard. Differentiation suggests that you can challenge all learners by providing materials and tasks on the standard at varied levels of difficulty, with varying degrees of scaffolding, through multiple instructional groups, and with time variations. Further, differentiation suggests that teachers can craft lessons in ways that tap into multiple student interests to promote heightened learner interest in the standard.

On the other hand Romantic (Radical) Design indicates learners setting their own objectives without considering any external standards. In addition to that half of the participants remind the school and classroom should not be the only environment for learning. There should be an easy movement in and out of school and learning acknowledged wherever it takes place. In this point there is a consistency between observation results with participants statements because such as in Sudbury Schools, Reggio Emilia inspired Schools and Waldorf Schools out of school environment are as valuable as indoors. There is a variety of ways or

purposes that they use out door environments. For instance Sudbury Schools giving permission to their students to take credits from other institutions and students also allowed to spend time out of class. In addition to that project-based learning is core in Reggio Emilia inspired Schools and school is supporting learners to observe, collect data and interact with out of school environment. Finally, nature has a unique importance in Waldorf pedagogy and educators support learners out of school learning.

Another thing one participant, from Sudbury School, suggested that students should not be tied to age/grade placement. They should be able to accumulate credit in relation to defined outcomes at times and in ways that suit their own particular contexts. Observations indicated that this freedom is available in Sudbury Schools because they haven't got regular classrooms and age/grade separation. Sudbury school educators believe in the power of social learning and interaction among learners.

Additionally, nearly two-third of the participants also mentioned that students can be flexible on graduation. Furthermore learners need flexible learning arrangements that build independence, decision-making skills, creativity, and a commitment to learning itself. On the other hand, such an approach calls for more rather than less monitoring of student outcomes. Kennedy (2001) argues that progress against expectations and goals would need to be assessed on a regular basis. Implication of this suggestion is highly complex because if you consider then system as a chain this involve whole. One education institution cannot decide to graduate learners earlier by itself. There must be consistency among institutions to facilitate access to higher education institutions. Last but not least, a deregulated curriculum does not surrender responsibility: instead, it enables students to make choices and requires schools to know their students in more profound and meaningful ways.

4.1.2.2.3 Strengthening Community- School Partnership

Interview results indicated that if the school curriculum were to be deregulated, schools would need better and more extensive relationships with their communities. If students are to spend more time in the community, undertaking vocational studies and community projects and service, then close links need to be developed between the school and its immediate environment. Some participants advocated that schools cannot continue to be like isolated institutions– the self-proclaimed learning centers of the industrial age. They must welcome community members onto their sites and open themselves up to genuine local involvement. In Sudbury Schools community connections seeks to bring the school and the community at large together to talk about how to help each other. Some schools post their partners and area of interests they connected on their web sites. Reggio inspired schools have also keen connection with community to conduct their projects. There are numerous examples of successful practice that can show what is possible, and the literature on schools as sites for the delivery of integrated community services is growing. In sum researcher can speculate that the school of the future should involve all stakeholders, including students, parents, community organizations, and businesses. The entire learning community must provide opportunities that promote learning as a lifelong process. Lastly, schools of the future should be places where learners be enabled to construct a world of their choosing for increasingly turbulent times rather than so as to understand a world that has already passed.

4.1.2.2.4 Rethink of School Organization

Results indicated that despite the many changes that have taken place in schools over recent decades, the concern remains that too little has changed about the place called school in its basic organizational and structural characteristics in

general. Under this theme *Social- Physical Environment*, and *Teacher-Student Roles* of related schools will briefly discuss in the light of findings.

Social and Physical Environment: Interview results will support with observation results to draw a picture of *Social and Physical Environment* of related schools. As Brown (2003) states culture of the learning context is as important to learning as the content and methods used. The appearance, organization, and structure of a classroom can invite learning with appealing colors, effective displays of student work, spaces for both solitary and collaborative work, easy access to materials and supplies, furniture arrangements that focus attention on peer input rather than largely or solely on the teacher, and visible cues to support quality work (Tomlinson and Imbeau, 2010). Conversely, a classroom's physical environment can diminish learning by being barren, drab, cramped, teacher-focused, distracting, or limiting (with seating arrangements that isolate students from one another). More significant than this physical climate, however, is the classroom's more intangible emotional climate. Students learn best when they feel safe, respected, involved, challenged, and supported (Tomlinson and Imbeau, 2010).

There are some schools that prominent in certain respects. For instance Hudson Valley Sudbury Schools' social environment can characterize in to two main features. In this school they are giving a great importance to social learning and all structure of school designed to facilitate social interaction. For this reason instead of classrooms schools consist of many multipurpose rooms to connect all students and create communicative environment. As mentioned before school was abolished age based levels of education and students in all age levels are learning together. As Vygotsky argued social interaction is core learning strategy in this school. Teacher of this school mentioned during observation that many students at the school have learned to read as a side effect of social activities and they learn to read without even being aware that they are doing so.

In addition to that weekly school meetings manage school and every student and staff member has a vote. In School Meetings members creates all of

the school's rules, makes decisions about school purchases, establishes committees to oversee the school's day-to-day operation, and *hires and fires staff members*. Interviewee mentioned that five-year-olds at the school have the same vote as do older students and adult staff members.

In learning environment students are free, all day, every day, to do what they wish at the school, as long as they don't violate any of the school's rules that made by the School meeting. None of the school's rules are related with how to learn or what to learn and school is not grading or evaluating students progress. There is no regular curriculum everything is based on learners' choice. Many students at the school never join a course, and the school is not forcing them to attain. Interviewee indicated that learning at Sudbury Valley is incidental and it occurs as a side effect of students' self-directed play and exploration. Observations also supported that the school provides space and time for place to play and explore. Because it equipped with computers, a fully furnished kitchen, a woodworking room, an art room, playground equipment, toys and games of various sorts, and a library with many books.

St. John's Episcopal Reggio Emilia Preschool (The Reggio Emilia approach) insists that children learn from their environment. For this reason interviewee from St. John's Episcopal Reggio Emilia Preschool indicated that they use the entire environment as a teacher and look for additional opportunities to integrate it. For example, they plan new spaces and remodel old ones and include integration of each classroom with the rest of the school. During observation the first thing draw attention was documentation. There were three kind of documents all around the entrance hall. First was children document (writings, photographs, drawings) these are proofs of their progress and exhibition of their projects. This process of expressing what was learned enables teachers to reevaluate the process of teaching, parents to understand what their child is learning, and children to reinforce material. Second type of documentation is 'classroom journals' that includes qualitative narratives, photos and journey of all learning process happened in in and out of classroom. Principal of the school

mentioned that there are two teachers in the classroom and one (anyone at one time) is responsible to keep journals to evaluate and represent classroom activity. The third type of documentation is to present school activities such as announcements from principal to inform parents about school policy, curriculum, development, planning and evaluation. Furthermore teaching children is viewed as a collective responsibility of parents, teachers and community; therefore everyone is encouraged to learn the Reggio Approach with documentation around the school.

It is observed that structure of the classrooms is different from a regular pre-school classroom. Indoor classrooms are filled with plants and natural light and every classroom have an independent but interconnected arts studio. In addition to that a corner for communication is a conspicuous region in classrooms. Principal of the school indicated that for a child interpersonal relationship with other children is very important and communication is an integral part of this process. Every student has a special stamp to sign and put notes to each other's mail box when they need. As mentioned before projects are the hearth of the Reggio Emilia curriculum and cameras, microscopes and outdoor stuff are always available to document life and bringing outside findings into the classroom. Interviewee teacher of the school indicated that Children should have some control over the direction of their learning. Children should be able to learn through experiences of touching, moving, listening, seeing, and hearing.

Finally Waldorf School of Princeton and Green Meadow Waldorf School's environments will explain. Waldorf schools are based on Steiner's ideas on education, and Waldorf school buildings are inspired by Steiner's ideas as an architect. Waldorf education sees the child as a whole being, made up of body, soul, and spirit; and attempts to nurture the whole child, helping him or her to rise to their fullest potential. Waldorf schools provide a warm, simple learning environment that feels much like a home. In early childhood, it is furnished with open-ended toys and activities that allow children to use their own creativity and imagination. The most typical features of pre-school classrooms are wooden toys,

roundish spaces and exhibition of artifacts. In Waldorf classrooms students only play with some specific toys (wooden toys, knitted animals, puppets, clothes horses, fabric dolls, natural materials etc.). The interviewee teacher of the Waldorf School says that this is the reason of not limiting students' imagination. She told that

If you give a regular doll to a student this doll is formed in some way like white-blonde girl but in fabric dolls player can imagine it any form s/he want. It can be a ginger hair boy, a mum or a black girl. We don't want to toys limit the imagination of our students, we want them to challenge their imagination with uncertainties.

In addition to that fairy tales and seasonal celebrations are very important in the curriculum in early ages and in every classroom there is an artifact represents this themes. Another interesting thing about these schools is their wall paintings. For example, the walls of the preschool classrooms are colored in rosy pink as main color theme and first-grade classrooms painted in warmer, reddish colors and feature images from fairy tales. By contrast, the walls of the sixth-grade rooms were painted in cooler, bluish colors and feature images of the individual human being, especially a human being in nature. Classroom murals, wall pictures, and colors should also change through the grades. Furthermore, more rounded, and more unified in the preschool and early elementary years will gradually become firmer, more articulated, and more angular as students advance through their schooling. There are also some spaces in this schools that is not exist in other schools such as eurythmy and sculpture Waldorf curriculum is highly emphasize arts education and spaces for music, eurythmy, painting, and sculpture, are located in observed two Waldorf school.

In the light of these results this can speculate physical arrangements should be flexible and support student access to a variety of learning options. In addition to that a range of resources should be available and support student access to content.

Teacher-Student Roles: In addition to that all interviewees mentioned that teachers in these schools will continue to nurture students but they should not be the only facilitators of student learning. There should be greater reliance placed on community resources to provide teaching and learning experiences for students. The teaching profession needs to broaden its base to admit others to play ancillary but important roles. For instance in Sudbury Schools there is no regular classes and teachers mostly help students to find some courses they want to specialize out of school. Other schools are using very rich resources for learning in communities – other professionals, artists, gardeners, business owners and so forth – all of whom have the potential to help prepare young people for the future. In the Hudson Valley Sudbury school the staff members at the school do not consider themselves to be teachers. They are, instead, adult members of the community who provide a wide variety of services, including some teaching. Most of their teaching is of the same variety as can be found in any human setting; it involves answering sincere questions and presenting ideas in the context of real conversations. Moreover, in St. John's Episcopal Reggio Emilia Preschool teachers are co-learners/researchers and should be active and offer mutual participation in the activity to help ensure that the child is clearly understand. Interviewees indicated that the role of the Waldorf teacher changes to meet the developmental needs of the child. In the early years, he or she nurtures the children as they adjust for the first time to school life. In early childhood, when children learn a great deal by imitation, the teacher acts as a role model in the classroom. Soon, as children grow older and seek an authority to learn from, the teacher's role shifts slightly. In the ideal situation, the same teacher will stay with a group of students throughout the eight years of elementary and middle school. This gives the teacher a unique ability to get to know the individual children and how best to teach them, and allows for a deep level of collaboration with parents, as the teacher becomes almost like another member of the child's family.

Renzulli Academy, Nueva and Commonwealth Schools' have more academic orientation than above-mentioned ones. In these schools Teachers are

required to understand the nature of each of their students, in addition to the nature of the content they teach. Interviewees indicated that teachers should continually ask, What does this student need at this moment in order to be able to progress with this key content, and what do I need to do to make that happen? One of the academic advisors of Renzulli Academy stated that

Teaching is hard. Confronted by too many students, intensive demands from stakeholders and no wonder we become habitual and standardized in our practices. Not only do we have no time to question why we do what we do, but we also experience the discomfort of change when we do ask the knotty questions. Nonetheless, our profession cannot progress and our increasingly diverse students cannot succeed if we do less.

In the light of above mentioned results this can be said that teachers have been faced with more change than ever before in education. Many factors influence the constantly changing classroom: Standard-based classrooms, knowledge of the intelligence, High expectations for all students and Rapid societal and technological change.

Briefly researcher anticipates schools in the future must be structured in such a way as to facilitate this broad community participation. At the same time, teachers will have a fundamental role in ensuring the much-needed stability and this part is critical in curriculum construction and the monitoring of student learning. They will guide learners into different experiences that meet their needs and aspirations.

In sum results indicated that in the schools of the future cannot continue the educational conditions of the past. Rather, they must take seriously the conditions that currently influence learners, acknowledging the unpredictable lives they face. A truly effective learning environment is one that adapts to the ever-evolving needs of community members. Such an environment must focus on learner -centred instructional models that encourage students to realize their full potential. Moreover, the learning environment must limit the dependency on time and place for learning opportunities to occur and must demonstrate relevance for

students. The environment should be independent of changes in faculty and administrative personnel. Moreover, the school's physical setting must be conducive to the continuous and changing needs of the learning community. The technical infrastructure must support current and future mobile and fixed technical equipment. Learning spaces must provide the necessary elements that allow for learning and instruction, and must be adaptable to different learning and teaching activities. Lastly, all participants strongly believe that regular schools do need to be reconfigured so that the life chances of the young will be enhanced. To achieve this represents a considerable challenge for policy-makers as the extent of the changes being suggested is considerable. Schools were originally created in their current form to serve an industrial society and must inevitably change to meet the new challenges and directions pursued by governments themselves. Little purpose is served by pretending that the curriculum, school structures and personnel, and teaching methods that served the industrial state will well serve the knowledge society.

4.2. The Major Trends That Shaping The Future K-8 Schools

Based on the inputs from interim and field trip interviews that provided significant information in relation to perceptions, research question two focused on elaborating major trends and how perceptions shape those trends. The data that obtained from seven interviews from three scholars of sociology, one school coordinator, two scholars from educational science and a Policy Analysis Coordinator. In order for the researcher to explore how perceptions of these major trends have impacts on existing as well as future educational implications, desk research method is used to identify and explain trends in education. Results categorized into two themes: (I) The dynamics of Globalization and (II) The Dynamics of Technology. Under these themes we also have some subthemes.

This section represents the overall results Trends Analysis so analysis of desk research findings gave as supportive quantitative data after every discussed theme. Because a trend is not a particular perspective of anyone this is a social (sometimes global) mainstream that researched and analyzed by international organizations. Figure 25 depicts all themes that driven from trend interviews. These themes will explain the overall picture surrounds Turkish education system in present as well as future risks and opportunities.

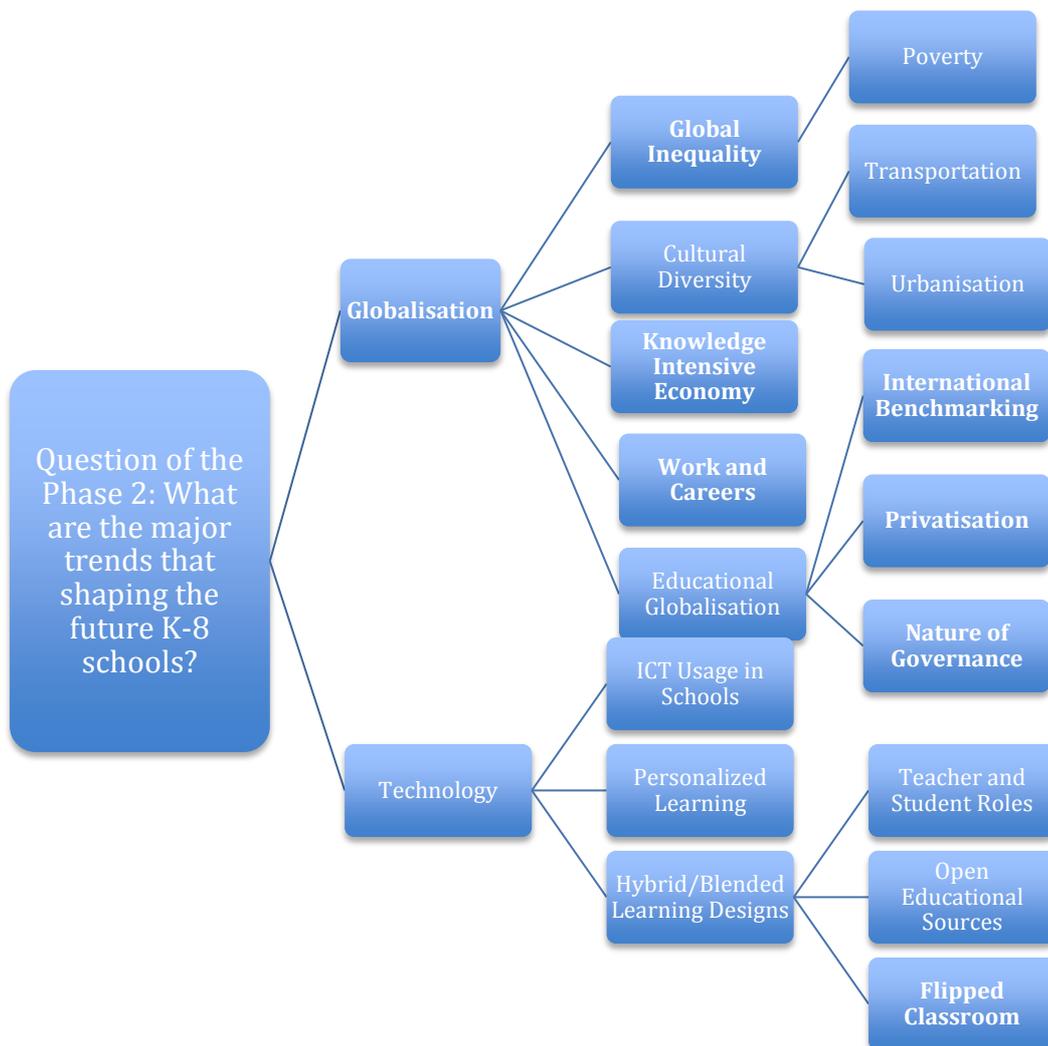


Figure 34: Overview of Research Question 2

4.2.1. Globalization

According to the results perspectives on globalization is highly controversial. For some participants, globalization represents the opening of national barriers, allowing the passage of knowledge, trade and culture for prosperity to flourish for the benefit of humankind. For instance, it embraces the Internet, travel, exchange and similar cross-border developments. For others, it encompasses mainly reprehensible developments – from international corporate power to growing international inequalities between rich and poor to cultural and political hegemony. Viewpoints tend to be polarized between extremes and these varied perspectives will discuss under following themes. Figure (26) depicts briefly the dynamics of globalization that focus in this study.

4.2.1.1. Knowledge Intensive Economy

Economic competition in worldwide has a number of major consequences for education. Competition in knowledge-based societies contingent on productivity differentials that themselves reflect differences in human capital. Competition from countries with low labor costs make necessary the rich countries to move certain activities offshore and create jobs using advanced qualifications in high value-added sectors. Parallel with these one participant mentioned, there is no need for uneducated people in global economic societies because these people cannot meet the demand of this new knowledge intensive society. Certifications become very important. No matter how much talented or smart you are it is important to have a diploma.

Results indicated that educators need to be aware of the growing focus on the advanced skills and qualifications their students will need to flourish within more knowledge-intensive labor markets, without neglecting the development of

student capabilities in other important skills. The questions of the knowledge and skills that schools should focus on in preparing students for future lives within tomorrow's learning society are rendered still more complex. One participant pointed that,

We have to think it in dialectically there are both positive and negative sides. In this age it is more important validating inequality than creating educational equality. In past people without diploma can easily find jobs in factories but nowadays industrialization is decreasing and becoming knowledge based society causing disappear of this class.

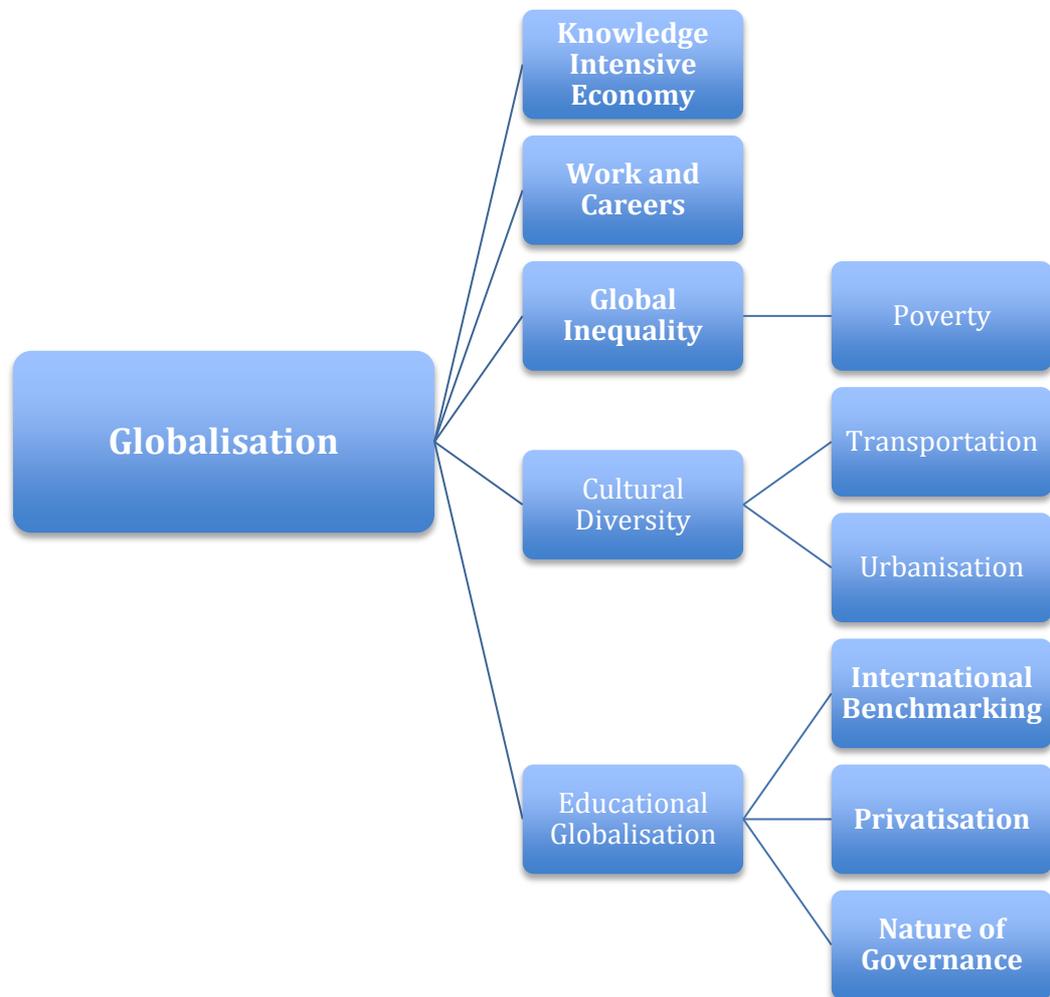


Figure 35: Themes and Sub-themes of Globalization

In addition, statistics show that labor market perspectives can play an significant role in educational decisions of people. In the context of the economic crisis (2008-10), the unemployment rate in Turkey fluctuated. In 2011, it remained above the OECD average for 25-64 year-olds with upper secondary or tertiary education, but below the OECD average for those without upper secondary education. The share of 15-29 year-olds without upper secondary education and neither employed nor in education or training (36.5%) is more than double the OECD average (15.8%). Improving youth outcomes requires policies to address skills needs and support transitions into the labor market, such as creating stronger links to the labor market for youth (OECD, 2013a).

4.2.1.2. Work and Careers

Most of the participants stated that an important objective of education and training is to prepare young people for the labor market and to help organize professional development for older working adults thereafter. Recognition of the importance of the knowledge economy should therefore be tempered by acknowledgement that a great many jobs remain outside very high-skill, dynamic sectors of the job market, and many people are outside the job market altogether. There is a general trend towards up-skilling but only as a central tendency. Demand for the most unskilled jobs has fallen – and hit hard the prospects facing the unqualified – but large numbers still occupy them. It is most plausible to assume that very wide differences in skill demands will remain a feature of tomorrow's employment world. Furthermore, flexibility is commonly heard as characteristic for working life in the 21st century. In related with the flexibility of specialization concept, one participant mentioned some counter arguments

Knowledge changes every time so that it is not valuable to work in same

job for a long time because you get in a vicarious cycle and learn nothing new. However if you tried to find a new job this time people think that you are not experienced enough. This is the reality of the society we live in. And we sociologists see that there is a tendency for flexibility of specialization. I can give a reference for that from Richard Sennett's, *Corrosion of character* in this book it says that people who change careers very often don't feel attachment to their work environment.

In related with the current position of work life, it is difficult to be precise on how many major job shifts people already in employment will make throughout their working lives; still more is precision impossible about futures for students still in school. The safest assumption is that all can expect unpredictable and changeable careers. This alone presents considerable challenges to schools, especially those which hold on to traditional assumptions about educational and work careers.

Some participants mentioned about the relationship between education and employment policies in global economy. This process was already begun in 1994, as can be seen in the signing by the WTO of the General Agreement of Trade in Services, which aimed at the liberalization of trading in services. Since then, there has been frank and open discussion of a desire to encourage an international trading of education services, treating them as if they were simple goods. In accordance with what participants underlined, the desk research provided some similar results. International trade in goods and merchandise is a relatively simple concept as it deals with the exchange of material goods. A product is transported from one country to another, where it is sold. The trade in services, in light of their immaterial nature, is a far more varied phenomenon. This variety can be seen within the education sector: study abroad, education delivered by foreign teachers, long-distance learning between countries, creation of foreign establishments. In addition, the global trade in education services is experiencing an extremely rapid growth, encouraged notably by the accelerated development of new information technologies (Education International, 2000)

The General Agreement on Trade in Services (GATS) is the first ever set

of multilateral, legally enforceable rules covering international trade in services. GATS operates on three levels: the main text containing general principles and obligations; annexes dealing with rules for specific sectors; individual countries' specific commitments to provide access to their markets. These commitments - like tariff schedules under GATT - are an integral part of the agreement. With the signing of the GATS, several countries agreed, in varying degrees, to open up their education sectors to international trade. In certain cases, according to the commitments that have been undertaken, this could lead to increased pressure in favor of the privatization of education. One participant explained this issue as,

Here the economic aspects of education comes up, in other words, it is how much money you will make after getting educated in this way. At the end of education, when people move on in, when they enter into workforce, they only care about how much money their skills will bring. Not only the need for national workforce but also the needs of the countries that have entered in global economy should be taken into account and surely what matters in this global workforce is the skills. GATS agreement is facilitating this situation.

This can be said that countries can no longer rely on natural resources for economic success. Today the most powerful competitive advantage is intellectual power: a power that invents and innovates. But most educational institutions in developing countries are not ready to meet the challenge. One participant elaborated on the issue,

Some schools in Austria firstly may do task analysis and then form the education. In order to make schools more functional in this global economy, this backward approach, I mean, the approach can be more useful for the people who defines this job, can do this job. Approach may be more useful. Isn't it like what we call as twentieth century skill in reality? Firstly it is decided that what kind of skills work force should have and then they develop strategies that will help them develop these skills at school. That's why I think this is a backward approach, too.

4.2.1.3. Global Inequality

In addition to that affluence has increased in OECD countries since the 1980s, but so has the magnitude of global inequality. There is a widening gap between richer and poorer regions, despite the rapid growth of the emerging economies of the BRIC (Brazil, Russia, India and China) countries. Life expectancy at birth is a revealing measure of inequality and, while overall life expectancy is improving all over the world, there is still a substantial gap between the average of OECD countries and other regions (OECD, 2013).

We know that one of the major problems of our country is quality of education. Especially ‘Educational Reform Initiation’ (Egitim Reformu Girisimi/ ERG) is highly engage in the low quality of education and how do educational institutions respond to meet needs of this need? In addition to that, one of the key means to promote equity and decrease inequality is through education, but for regions still struggling with building schools or ensuring the security of their children in the classroom, ensuring that quality education is accessible for all is a difficult goal.

In addition to aforementioned information this widening gap in income equality seems to be due not to increasing separation between the poor and middle class. Rather, there is a growing divide between the middle class and the rich in many (though not all) OECD countries. At the same time, spending on social programs has increased in every OECD member country. Education can play a role in addressing some of the causes of inequality by providing individuals from poorer backgrounds with the cognitive and social skills necessary to succeed in the modern world. However, more can and should be done to support those least well off to achieve their goals in education and the workforce (OECD, 2013). One participant gave an interesting example in related with this issue,

It is not a coincidence that Hakkari is one of the most unsuccessful cities

among Turkey's universities. With the current structure of education, I don't reckon that there is a concern to ensure equality. Again it can be associated with the culture. You think of the social and cultural stock of this culture by using their own language but not talking to them or via books.

Although disadvantaged students face lower performance, as is the case in many OECD countries, Turkey has an above-average percentage of students who succeed academically despite the odds. Schools in Turkey tend to be homogenous in both student socio-economic background and academic performance, indicating low levels of social and academic inclusion. PISA 2009 indicates that most of the difference in academic performance between schools (51.7%) is explained by economic, social and cultural status of schools and students. Nonetheless, 42% of 15-year-olds from low socio-economic backgrounds performed better than predicted (compared to the OECD average of 30.8%). Targeted policies should aim to systematically support and strengthen schools' capacity to address the impact of low socio-economic background on performance (OECD, 2013a). Results indicated that if the main purpose of education considered it is here to create equal opportunities, but today in our society educational inequalities are being used as a means of justification. History of success in education is largely based on the level of social education. People with higher levels of social education continue to establish a high level of education whereas what we want is people with a low social-economic level to reach a higher level of education. However, it is considered as if it was meritocratic. In related with that one participant stated that, How do we know education is not meritocratic? Surely, via statistics. Is it possible that each child with lower social level of education has low intelligence. Social education level and academic success is in a close relationship.

4.2.1.3.1. Poverty

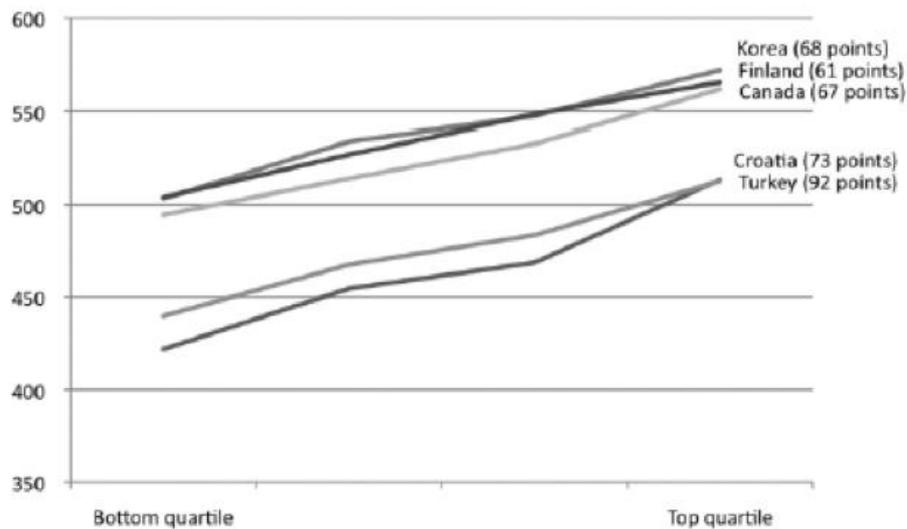
Participants emphasized that children's life chances are shaped and influenced by the conditions into which they are born and develop. As well as being able to measure the persistence of poverty in populations as a whole, it is also possible to identify how many children live in poverty. Very wide variations exist between OECD countries in terms of children living in poverty, and the average continues to rise slightly. Despite hardship, children's expectations of success, their hopes and dreams for school and career, seem to be rather resilient. Students today are more likely to expect to earn a university degree as measured by PISA. Moreover, in many countries, students from more disadvantaged backgrounds are more likely than before to expect to earn a university degree. The importance of social background in shaping attainment remains one of the most well-charted relationships in educational and social research (OECD, 2013).

Desk research results indicated that The Economic, Social and Cultural Status (ESCS) index's findings are so remarkable. ESCS takes the socio-economic condition of each student into account allows us to answer the following questions: What is the difference between the test scores of students from higher socio-economic backgrounds and those from lower socio-economic backgrounds? How much of the difference in test scores is explained by students' socio-economic background? When the achievement gap, i.e. the difference between the test scores of the students at the bottom quartile of ESCS index and those of the students at the top, is calculated, the gap in Turkey appears to be wider than the gap in OECD countries. The average achievement gap in the OECD is 88 points, whereas the gap in Turkey stands at 92 points. One participant also explained this issue,

According to PISA 2009 results, Turkey is one of OECD countries that social economic background mostly affects the student achievement. This

means that there is no equal education for everyone at school/ There is a big quality gap among schools and parents want their children to get education at better schools. It may cause competition. Competition shows up with examination system and the schools are separated by their socio-economic backgrounds.

Additionally Figure 27 shows the distribution of the reading test scores of five countries according to the ESCS index. Korea, Canada and Finland all have better average performance levels and relatively smaller achievement gaps. The achievement gap in Finland is especially low at 61 points. Croatia, with its average performance similar to Turkey's, has an achievement gap of 73 points. Slopes of the lines in the following graph can also be interpreted as indicators of the extent to which socio-economic background plays a determinative role (Blancy and Sasmaz, 2009).



Source: OECD, Results of PISA 2006 and PISA 2009.

Figure 36: Socioeconomic Status and Achievement Gap

With other perspective participants mentioned that by measuring education levels based on what students have learned, one influential study estimates that an increase of one standard deviation in student scores on international assessments of literacy and mathematics is associated with a 2 percent increase in annual GDP per capita growth.

4.2.1.4. Cultural Diversity

Sociologists describe the era we live in as Liquid Modernity. This concept is based on the works of Zygmunt Bauman who one of the world's most eminent social theorists is. He argues that this changing mood of critical engagement with society (or lack of it) is because of the shift from heavy to light modernity which has resulted in a profound transformation of public space and, more generally, in the fashion in which the modern society works and perpetuates itself.

Bauman notes that Heavy modernity was endemically pregnant with the possibility of totalitarianism – the threat of an enforced homogeneity, the enemy of contingency, variety and ambiguity. It was in this period of history that the defense of individual autonomy and creativity against such things as mass culture offered by critical theory appealed to a wide body of citizens. One participant made a comparison with the past and present during the interview.

When you think of the times before 1960, there were great ideologies. As for today, we see that people are more fragmented, more introvert and more smaller and different communities have appeared. As a feature of this period of uncertainty, people think that they cannot reproduce their own culture; their identity. When we think in terms of Turkey; Kemalists think that the identity of the culture cannot be passed down; this is also valid for all religious people including Alevis, Kurdish and Armenian.

Bauman (2000) stated that liquid Modern society, however, is no less modern than it was 100 years ago, because it is still obsessed with modernizing,

with creative destruction... with phasing out, cutting out, merging, downsizing, dismantling, becoming more productive or competitive, and something else which is continuous with heavy modernity is that fulfillment is always somewhere in the future. One of the sociologists summarized this idea with an analogy: In heavy modernity era we were in a ship and going slowly with respect to go where to arrive. Today we all are in a plane, there aren't any metanarratives and great leaders. So we haven't got a pilot. But two things make the Liquid Modern Era different to the Heavy Modern Era: Firstly, there is the end of the idea of perfectibility. Bauman (2000) mentioned that one cannot longer believe that there will be an end to the process of modernization. Secondly, people are now expected to find individual solutions to their problems. No longer people solve their problems collectively through politics, but it is put upon the individual to look to them to solve their life-problems, or to improve themselves. In related with that one participant stated that,

The world progress to be a global world and this process brings about uncertainties. That's why, we, sociologists, call this era as 'the era of uncertainty'. Also with the effect of globalization, in cultural context, this binary includes a dynamics both in the meaning of becoming homogenization and differentiation. We do not know where the uncertainties take us to so we need to reach a common ground in this tension line. On one hand, globalization is considered as that American culture has entered into our house, besides this considering the whole world you realize that there is more degradation and fragmentation among small groups in other cultures. For example, the polarization between different groups in our country. An indication of this is inability to find a common tongue.

Results indicated that there are also some concerns about the identity or 'human model' of the future. On the one hand we discuss about the diversity the tendency to create another standardized human model in these perspectives. Alain Michel, the Inspector General of France's educational system puts it this way: Globalization, because of the risks it brings of soulless standardization, can lead to fragmentation and a reduced sense of belonging to a wider community. The

excesses of unbridled markets, in which prices and the market are more important than social or cultural relationships, are being met with a reaction of narrow nationalism, regionalism and parochialism (Michel, A., 2001:219). It is an important one in considering the aims of schools because, by educating citizens to be aware of these risks, they can shape the future of our societies (Michel, 2001). Importance of this finding is highlighted in one interview.

Actually, if you look at our situation, all applications of globalization and standardization bring us to be stereotype. I reckon that creating a global human model is much more dangerous than creating a national human model of old people. Even people saying that raising a uniform human model are not aware of this. However, due to so much standardization with globalization, it is gone right towards standardization in education as well. Actually, we are on the way towards to create a human model having more definite, certain limit in relation to old people.

This is the side of cultural diversity and social background of people. But our education system regrets the variety of abilities among learners as well. Cultural differences and ability differences should be consider together. If one cannot find his/her value cannot express his/herself. Growing diversity is likely to be pushed along by changes in demographic structure, shifting income distributions, migration, and the erosion of traditional culture.

Here our aim is not just discuss about cultural diversity of our society but in education this has another meaning. All participants mentioned about their aspirations about schools will not be a melting pot any more. Results indicated that here the main point is finding the common values, that make our society as it is, and creating a new common narrative. It is neither about underlying differences nor multicultural education; it's about creating a new social paradigm. What kind of features does this paradigm need to have? All participants argued that we need to create new social paradigm for our society that reflects all facets of our society. Until this time – as a result of modernity- we tried to create a modern model of perfect Turkish citizens. After this time we need to approve there is no perfect or

stable human model. One participant mentioned about his recent studies on course books.

For instance, when the course books in Turkey are analyzed, there is no difference; they show middle class, secular families there. Even in Kurdish elective course book, there is not a word as 'Kurdish'. There is no kerchiefed person in religion course book. In any course book, you cannot come across with a name or family, which is not Muslim. You see, all of these are ignorance and connivance in a way. This is to carry out education as monolingual and monocultural. We witness this in political discussions as well, such as the discussion of constitution. There are some questions like how come we won't recognize the people who will hold us together.

In sum there are some important points need to highlight related with results. Transitions across the globe are starting from a wide range of departure points. Greater differentiation might in turn open up opportunities for diversity to support creativity needed to make the most of newly emerging technologies, economic change, and social transformation. On the other hand a number of major risks occur in the context of increasing social diversity. Sometimes positive difference and diversity becomes negative inequality and segregation. There are thus risks of unacceptable inequality, especially in the distribution of income, wealth and health. Similar concerns arise about too many individuals having access to only very low absolute levels of resources, as well as issues to do with personal security and human rights that also will discuss in following headings.

4.2.1.4.1. Transportation

Moreover in trends interviews researcher asked about how participants perceive globalization in related with education and its positive and negative effects. First we will briefly discuss about the globalizations effects on society and how it transformed the social conciseness. Globalization has brought people together and allows them to share new cultures, ideas, and goods. Some

participants mentioned about globalization transformed social consciousness forever. As we mentioned before Kuhn says, paradigm cannot be free from observation. In first glance, traveling and mobility issues can see irrelevant but when we have a bird eye view its effects it has a great influence on peoples perspective according to their own society and other societies as well. Decreasing costs of transport and technological advances in communication have allowed more people to travel to new places than ever before. Of course, this mobility extends to goods and services, as well as people and communities. One participant gave a link between transportation and education to explain transportation's effects on education.

Student exchanges and traveling is rapidly increasing educators foresee that in the near future the age for exchange students will decrease from university level to middle school level. Educators should response this kind of social interaction and share of globally travelling students. With this sense accreditation among institutions, credit transfer issues and global curriculum will be the hot topics for education of future. As we all know. Previous years international schools were just for some groups but recent years people have tendency to select international schools or IB programs to support international experiences of students.

4.2.1.4.2. Urbanization

Urbanization is another global shift that has consequences for education. Responses on globalization have many dimensions and these will be briefly explained with giving link between education sector. As OECD (2013) reports mentioned our world is becoming more and more urban, with an ever-increasing proportion of the world's population living in cities. Recent century be a witness of development of megacities, which have populations higher than tens of millions. The shift from rural to urban living has consequences for how people live and work. Increasing urbanization provides more career and educational

opportunities and a host of other positive prospects. Education can take advantage of the economies of scale presented by urbanization, with opportunities for less costly expansion of services. The challenge will be not only to expand access, but also to increase learning outcomes and education's relevance to the urban labor market, while reducing rural-urban gaps (OECD, 2013).

Notwithstanding, this phenomenon also has the potential to provide a richer cultural environment and better, more diverse job prospects that can motivate students in their studies. For education, these data raise a number of questions about the role of the school in building community and social capital in large urban societies. The evidence from student performance suggests that urbanization can influence achievement at school. For example, PISA 2009 data indicate that for some countries, living in large urban areas is linked to improved student performance (OECD, 2013).

On the other hand sociologists underline a point we that overlook is urban transformation. Global cities are not just bigger form of cities of past. They have a unique life and social style. Moreover they have other types of poverty and oppressed population. Because, favors of urbanization will not meet to people who came from low SES and this situation mentioned in interviews very often.

When it is considered in terms of cities, especially a great amount of urban transformation is taking place in Turkey; people living in the city are being taken out of the city and so it will be even more difficult for them to reach something. Under the name of urban transformation these groups are being taken out of cities and these areas are being ennobled.

This situation is causing some different problems that none of the education reports touch. This concept is new poverty and this issue is highly important in the content of Turkey and need to consider for the near future. Many countries have witnessed rising youth unemployment and new forms of insecurity, poverty and exclusion as well. The situation is especially critical in big city suburbs, where a rapid urbanism sharpen the sense of rejection by young people

who have developed their own counterculture. This exclusion stems particularly from economic conditions, and from the corruption of local support institutions and networks of solidarity. Mostly, blame for this exclusion is attribute to schools, criticizing it with failing in their educational and social duties. This is especially difficult for teachers and other education workers who work in the most disadvantaged neighborhoods. One participant mentioned about the literature of sociology in related with this issue.

Our minimum standards have increased and access of this population to qualified education is steadily decreasing. This is the leading issue that definitely needs to be taken into account and to be taken precautions. In thinking about the schools and the society of the future, we need to take particular account of all these structures because the creation of policies in relation to risk groups is extremely important and one more point to be considered is that they describe this poverty as new poverty in the literature.

The importance of the considering this problem in the future is mentioned about one of our participants to draw the picture of reality of Turkey.

Till 1960-70-80, the groups who migrated from rural to urban had a chance to hold in the city by occupying the state lands withing the city and by slumming. But now that hope has gone. Especially young people have no hope with new poverty (urban poverty). That's why they tend to be more angry and violent towards upper class. If you remember the events that happened in Paris a few years ago, people living in suburbs and ghettos had reacted this poverty, new type of poverty by creating a tension. Until now, in Turkey there has not happened such a thing but data collected in the field shows that such types of events may also happen in Turkey in the future.

4.2.1.5. Educational Globalization

When we look at the dynamics of society in context. Can we really advocate that our societies becoming more and more diverse? Or we just took the notice of variety among people. Educators at all levels face an even greater range of expectations and aspirations from students and their families. How far should these differences be accommodated? Are educators well equipped to incorporate this diversity? In the light of above mentioned participants indicated that education is in a chaos era. This chaos is because of trends that effect society and new paradigms of education. In addition to that we also consider new research on learning and effect of technology on education.

The skills that we care in the school system are only the skills helping them to have the quickest and the most true answers in multiple choice exam. The remaining skills and abilities except this are worthless in school environment. In order to the fact that the school to be a place embracing differences, it should just leave the issues like intelligence, learning speed, or academic success. The child is someone who accommodates differences in the meaning of the same level of intelligence but low level of social education or different cultural history or ethnic identity. That's why school should be a systematical place responding all these differences. When mentioning a differentiation, it should have a purpose of differentiation involving all these features.

An educator argues that education is moribund because of not adapting the needs of new era. One of the educational science scholars stated that,

I think that inherited education for thousands of years came to a point of extinction. The definition of education and the format of the presentation of education and all will change and these concepts will be expressed in different ways. I think education will completely change philosophically. The changes so far were within the frame of the changes of small concepts, prominence of the technology, teacher training, students to be more active, etc. The change that I'm talking about will be much more different and an overall change and it is difficult to foresee it. This education and school environment continuing since Ancient Greek will

completely change the perspectives towards education. This change will come out as a result of the change in the economy, in politics, and in the culture. For example, if the world has become a country, that I think so, consider the system of law, there is a concept such as international law. Besides, trade is in the same way. There is a course of events towards the removal of the border issues such as the use of money, mobility of money, human mobility. By getting affected by all these, education will forcedly be attuned to these.

In the light of above mentioned this can claim that education is in a change period and this change period had already started to show its consequences. Education is effected by the impacts of globalization in many ways. On the other hand nearly all participants said that the main items (School Schedule, Duration, Curriculum, Compulsory Education, Educational Administration) of education is not affected by globalization yet. Every individual country is still having its own path for these items.

I think the real impact of standardization in education has not even started yet, we will see its real effect in the coming years. Important things such as a country's compulsory education process or how they will do it, etc. depend on each country. I still think that education is still original and I do not think it still has come to the point of standardization to the maximum extent.

After mentioning about the change, interview results showed a great dissatisfaction from current implications of education. One of the participants made highly speculative explanations to explain the current situation of school system.

When we look at the events now, I see that as if we sterilized the schools. In fact I see how limited we behaved by sloughing off that human is a psychological, and social living being, by focusing on these two skills, by distinguishing the ones who are successful and unsuccessful on this topic, and by behaving like the unsuccessful ones have nothing, by telling how valuable or how worthless they are while they are developing any skills. We created our schools not as a foundation to respond biological, social,

and psychological needs of people but to teach only Math's and Turkish and then we accused and judged our schools by standardization. Also, at the end of this, it came out that we did not teach this Math's and Turkish skills that we cared a lot well. If the only thing that we expect from the schools is to teach Math, Turkish, Science and they even cannot achieve this, we have to ask the question what do the schools do? What do the schools do? Answer is simple, today's schools are just creating or/and conserving social inequality.

All participants are also in consensus in the need for an educational reform. Educational reform is not a revolution type procedure it is a process and need to prepare a step-by-step macro plan and one of the participants indicated his perspective on educational reforms.

What we call as education reform is not something that can be done once and then changed. Education reform is something that understands the needs and the problems of each day at a glance, is something dynamic. For alteration, preliminary preparation needs to be done and it will happen in time, it will not happen in a night like the proclamation of the republic. There are still many concrete steps to be taken and policies to be arranged. For these, it is needed a massive macro plan. The alteration happens painfully and slowly. These are the difficult things to change but I believe that it will start from somewhere.

This can be said that one cannot make changes overnight in this era but the necessity is present. If the education hopes to meet the challenge of preparing students of today for the world of tomorrow, it must breakout of its current mind-set and move ahead rapidly to embrace the new paradigm of constant and accelerating change. One participant stand out that there is need for the look education with different perspective. It is no matter how much you force yourself to change your paradigm sometimes it is impossible.

As Kuhn said before, the ones that will change this paradigm should be very young or out of field. Because an observation cannot be free from paradigm. That they are out of field has such benefits that you can't expect a Christian to accept Jesus is not the son of the God but a non-Christian

can say this. Because for a Christian Jesus is son of the God... Close your eyes and imagine an animal with two nails, two horns, and lactiferous/ Which animal utters 'moo' when it's hurt? ...Paradigm makes you say 'cow' but when I ask this in India, they would definitely say 'God'. When you think of this, like positivists say something haven't been built on exact and clear truths. Beyond this, the case that the ones who are not experts in the field of education produce an idea and decide on education policies causes problems.

As a result this can be said that there is a need for more dynamic construction to Turkish education system. A metaphor can use to explain today's schools in Turkey. Consider the blue whale, the largest mammal on earth. A blue whale is so big that when it decides to turn around, it can take up to 5 to 7 minutes to turn 180 degrees. A strong parallel between blue whale and schools can draw. Both of them spend great effort to take a turn when change needs. And compare blue whale to a school of sardines, which can turn almost instantly. How do they do it? Although all of the fish appear to be swimming together, in reality a small number of fish are beginning to swim in a different direction. As they head off on this new course they cause conflict, friction and collisions with other fish but when a critical mass of herring is reached the rest of the school changes direction and goes with them (McCain & Jukes, 2001).

4.2.1.5.1. International Benchmarking

In the absence of a common standardized test there is a resounding call for institutions to identify specific learning outcomes and achievement levels and consequently demonstrate what students are able to do as a result of the investment. One participant stated that,

The significant point while evaluating the results of these exams is not to make a comparison between countries. Each country has a different ecosystem and the condition that a system that was conducted in a country

before was used in another country does not guarantee that they will get the same results as well. The issue to be focused here is what specific skills are gained by youth of our country. If they have low success rate on main skill, mathematics and science, it is clear that there are some steps to be taken.

Despite that risks of international exams are still the most frequent materials to evidence of success of education system of countries. In addition to that one of the misuse of the results of international exams are using the results for every kind of policy implementation. Especially in Turkey PISA results become the ‘first major’ for all decision making process. One participant stated that issue from a different angle.

I think one of the most important and useful results of globalization to create a social control mechanism. From now on you can’t impose on your own truth to people. The ones observing the society before comes the condition of not observing it. Remember the relationship between ‘observer and observed’. This relationship is described in Foucault. This, so, demolishes the hierarchy between line relationships.

This short but intense statement lead study to discuss briefly to power that is applied to individuals in the form of continuous individual supervision, in the form of control, punishment, and compensation, and in the form of correction, that is, the molding and transformation of individuals in terms of certain norms. This threefold aspect of Panopticism—supervision, control, correction—seems to be a fundamental and characteristic dimension of the power relations that exist in our society (Foucault, 1975, p. 70). What distinguishes it most directly is constant supervision [surveillance] of individuals by someone who exercised a power over them (Foucault, 1975, p. 59) because of what they might do if not properly supervised, examined, and controlled.

Vinson (2005) stated that while rightly exploring the modern workings and underpinnings of disciplinary surveillance, Foucault's interpretation somewhat downplayed the contemporary disciplinary status of spectacle (as he

defined it). In terms of schooling, his work helps make transparent the links between the control of knowledge (e.g., curriculum standards tied to high-stakes standardized tests) and the implementation of gaze-based power, observation—watching—for instance, in the control exhibited by test publishers and upper level educational, political, corporate, and media management over the normal set of procedures by which assessment mechanisms—and schooling processes more generally—should proceed, be represented, and be interpreted (Vinson, 2005). UN Educational, Scientific and Cultural Organization (UNESCO) and the UN Development Program (UNDP), as well as the OECD, have promoted homogeneous educational assessment systems with the aim of generating comparable results at international level. In addition to that there are some national exams for access higher levels of education. To hold system accountable, policy makers and high-stakes decision makers are using standardization in many ways. Today standardized test scores are the most common way of deciding whether schools are doing a good job.

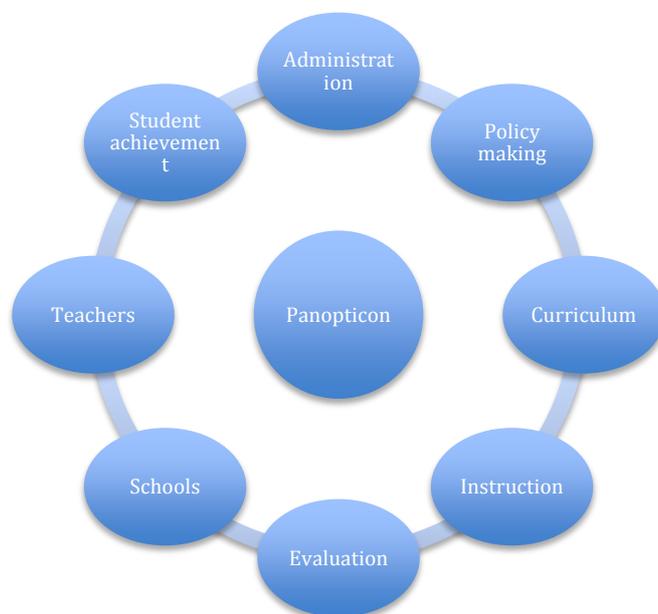


Figure 37: Panopticon of Education

As in the Figure 37 depicts very basically; Educational administration, Policy making, Curriculum, Instruction, Evaluation, Schools, Teachers and Student achievement components are the components that surveillance by international high stakes evaluations. In terms of student achievement it is easy to see the results of this surveillance by looking at the results of international exam results. International assessment tests have played a critical and constructive role in Turkey in assessing the learning outcomes of children and informing both public opinion and policies. The percentage of students who fail to acquire basic level of competencies in reading, mathematics, and science constitutes a serious risk for Turkey. Based on PISA 2009 results, 24.5 % of students who took the test are below the basic competency level (below PISA level 2) in reading. This proportion is 30 % in science and 42 % in mathematics. Given one third of 15–19 age cohort is out of school, it can be argued that more than half of 15-year-olds in Turkey do not have basic competency in mathematics (Education Reform Initiative, 2011). Serious disparities in learning outcomes exist among income groups and high school types. A gap of 100 points (or more than 2 years of education) exists between students from the richest and poorest income quintile groups (World Bank, 2012).

Table 10: *Percentage of students below competency level 2 in PISA*

	2003	2006	2009
Reading	37	32	24.5
Mathematics	52	52	42
Science		46	30

Note: taken from Education Reform Initiative, 2011

This results (Table 10) confirming the participants' responses upon concern that the majority of children in this group have lower academic achievement levels than children attending school, it can be claimed that almost half of 15-year-old children do not have basic skills. One participant made a remarkable interpretation on the issue:

Known and successful treatment method for us is the symptomatic one. If one of your relatives says 'I have a headache', there is no one who will not advice as 'Take a painkiller' by deriving from this symptom. However, if the problem is so deep that cannot be solved with a painkiller, this solution is not something more than a waste of time. If you try to use this approach that I want to tell here to solve the problems of education system, the problems faced today become a fate and there will be many people offering an Aspirin when you get the results of the international exams like PISA, TIMMS, and PIRLS. The main point that I want to emphasize in here is that from now on instead of looking at the symptoms, we should focus on the solution before the symptoms occurred, that is, we should set protective paradigms to work. Instead of complaining like 'why did it happen like this?', we should change the fate before the problems occurred by taking the necessary precautions. Same as it ever was, when the symptom occurred, we immediately tried to find a solution by changing the one that needs to be changed among Material, Method and Curriculum which is the easiest solution set. Therefore, let's choose Protective Solution Set instead of Symptomatic Treatment Set (solutions) and cease this to be the fate of us.

As mentioned earlier, the most recent PISA report, based on the 2009 test, demonstrates that more equitable systems typically achieve greater overall educational progress. A key function of education systems is to monitor the learning outcomes of different population groups and design programs that address specific barriers. A well-functioning education system will therefore have policies or programs that examine the coverage of the system and address the disadvantages faced by some population groups (e.g., low-income groups, ethno linguistic minorities, disabled people, and girls) and will target special resources to assist those disadvantaged groups. One participant mentioned that rather than focusing on the achievement issue we need to consider how we use those know-

how to improve problematic parts in our system.

The point to focus in international exams is not an evaluation like that education system should completely be good or completely bad, instead it should focus on the evaluation of the issues hidden in more detail. For instance, when they say that there is a huge gap between being an immigrant and a successful person in your country, social policy development results should be used. If there is a huge gap among the academic success rates of minority people in Germany and minority people in Turkey, this shows a problem. This is a good means of determination. To exemplify, if Germany was unsuccessful on the education of minority groups five years ago and become successful five years later, they can give us a feedback on how they achieved this and what kind of social policies are developed by them.

Results of this study indicated that one of the benefits of international exams is to guess the anticipated problems and bring out solution offers that worked out before. For example, bullying is a widely studied subject. If it can be seen on what conditions this problem has come out, when such situations start to happen in Turkey as well, it can be foreseen the same problem will come out and the solution offers will be useful for us. Besides this, for example let's tackle the grading system. In Finland, there is a system that isn't given grades till eight-grade. When tackling their grading system, it can be found a solution by focusing on how this situation affected student psychology, whether we can implement this system based on its results or not.

4.2.1.5.2. Privatization

Results of the trends interviews indicated that Private Schools have a unique position in our system. Future of private schools was asked to participants and their responses categorized under three dimension. These are *Finance*, *Unique Schools* and *Curriculum*. According to financial dimension of private schools

participants stated that in the near future the rate of private schools is going to increase. Participants indicated that rapid growth of private-sector provision of education services, sparked by the limited ability of governments to meet growing demand for education. There are also some other evidences for this growth. When we consider Vision 2032 for Turkey Report the aim of to reach %25 private school rate is clearly stated. The World Bank and OECD are advocating privatization policies for developing countries to address their educational problems. Belfield and Levin (2002) stated that privatization in education eases the pressure on governments to meet increasing demand and relieves them of excessive cost (p. 7). Education is a very expensive investment in both developed and developing countries and government sources alone are not enough to provide quality education for all students. Privatization eases some of these stresses. The private sector can be involved in educational investment to build and run schools, if they are supported by good regulation. One participant mentioned that

Private schools are divided into two by Ministry of Education. This means the marginalization of the private schools. Private schools do not belong to another country's Ministry of Education, as we are bound up the same ministry, we are not different. Until now, all ministers of education mention about us as 'you' private school. Ministry of education Private schools should be to make the life easier not to make it even more difficult.

Although it is often assumed that the private sector serves mainly students who can afford to pay, private entities are important providers of education services to even the poorest communities, especially in areas that governments do not reach. In many countries, governments subsidize or contract non-state organizations to provide education but cover much of the cost. It is essential, however, that governments recognize their importance and provide appropriate regulation and oversight of private providers to ensure the efficiency and coherence of their education services. The private sector also successfully collaborates with the government to both improve the relevance of education

services and expand access to these services (World Bank, 2012). In addition to all that discussion on the private schools, one of the participants mentioned a very polemical issue on educational finance in education.

The differentiation of private school and state school is an old paradigm anymore. Here you will face across mixed model paradigm meaning financial operation. There will be a semi-private structure such as charter schools. I don't think that any school will stay as solitary private school or solitary state school in Turkey or around the world. I believe that there will be a mixed system that will improve the weak points of both state and private schools. Now state thinks of switching to a 'coupon system'. What is 'coupon system'? It means that state will support the student from now on and the student will be able to choose the desired school with the help of this support. In this way private schools have more chance to get more students. For example, if there are students in a private school, some of them will be the ones coming with the state support. We cannot call such a school as private school like in old paradigms, too because many students in the private schools will study with the help of the money provided by the state. Today considering the health system, I believe that schools will be like this in the future. Just as you have social insurance and when you go to the hospital, if it is necessary, you just pay the extra money except your insurance paid on behalf of you and make use of this service. School system will turn into this in the same way; even if the student studies in a private school, when s/he graduates, s/he will work in this country, and will be a part of the workforce, culture, and social life. Then, there is no difference between that state pays expenses of the students in private schools for education and state gives a chance for education in their own schools. That's why I believe that it should be supported, all in all this student is a part of our country and will give service for this country.

The highly intensive central management of Turkish education does not meet the needs of a diverse society. Public schools serves the public interest by preparing students for society and by teaching common values, but private schools can better meet private interests by providing alternatives in order to address diversity so that parents can act in the best way according to their perception of the interests of their children. Public schools have standardized practices and cannot meet specific group or individual needs. First of all this diversity discussed

on the cultural facet. One participant mentioned that

From now on what we need to do while producing policies is to consider what kind of differences people have in the society, to evaluate what kind of needs people have and to find policies to solve the needs of people. I think there is no difference between considering the needs of a student who does not know Turkish in primary school and trying to understand why private schools show national education program on paper but do not use in real. All needs to aim to create policies in order to solve the needs of people on that region's schools.

On the other hand when we consider diversity as institutional diversity this situation explained by a participant as;

According to the Fundamental law numbered with 1739, the schools with the frame of three fundamental principles, starting with the main purposes of Turkish National Education system, should have the features and power to do what they would like to do. I have a reason why I give importance to this three principles: as an individual living in turkey, s/he can open up such a school that it can be structured in a way wide open to be abused and in order to create different human models, schools can be opened up. So this should be prevented. Except this, people should be free on founding a school and preparing their own school program. Let people decide themselves by thinking of their own needs so it will be a better system, which will service to the needs of human beings. The important issue is not to make the same thing compulsory for everyone.

There is a focused movement to change the traditional classroom paradigm and rearrange the entire school experience that is largely being driven by the influence of innovative learning approaches. Results indicated that private schools are aware of the importance of innovative learning approaches, but the problem in the highly centralized curriculum there is no room for innovation. Last but not least participants mentioned about the uniqueness of the schools. There is a tendency to mentioned schools in numbers. How many schools? How many teachers? What is the percentage of private schools in different regions? Despite we focus on quantity, there is a little leeway to discuss on quality of private

schools. One participant gave remarkable examples on the issue.

During the Ottoman times, madrasahs had a feature, too. Madrasahs were better private schools than today's. During the years between 1890-1900, I mean with constitutionalism, there were very successful private school until the foundation of the republic. Şemsi Efendi and İsmail Hakkı Baltacıoğlu had all their own private schools and besides this, there were more institutive schools such as Darüşşafaka, Galatasaray, Kabataş, etc. After the foundation of the republic, all schools are monotype schools. There is no more unique schools. Education system founded monotype schools in itself, which can be controlled centrally because of certain fears. Today, in Turkey, there are approximately 1000 private schools. If you take their names off, you will realize that almost all of them are the same not only with their architecture, class structure but also with everything. These schools, except their luxury appearance, are not different from each other or state schools in terms of their school policies. Schools should be both unique and private. Schools are just private financially but not unique. I think that future school model should be looked for in the past. School culture has been spoiled under the name of maximizing but in this process schools has been standardized.

Policy makers can mix policy tools in an optimal way to meet government objectives in education (World Bank 1999). Governments need to create national standards, an accreditation system, and transparency and provide freedom to private schools to shape their own curriculum and innovations. Schools need to have a choice in curriculum, teachers, salaries, textbooks, and budget. In these ways, governments can provide competitive schools, and such schools can be monitored by parents and students who receive the services directly. When we considered about the highly centralized implementations of education such as curriculum and standard exams one can say that we still have a long way. For this reason, all participants mentioned how private schools learn how to pretend. One participant gave some example on issue:

Managers find a way to make this look legal and as long as they keep doing this, Ministry of Education do not object. As if private schools used a parallel program and even if it seems like they're following the program

on paper, they definitely do not keep it. Actually, if ministry of education let them implement the new applications (increasing the lesson hours, mixed age implementation, etc.) and support them, they will have a chance to control the private school. However, in this way they just overlook and miss the control chance of the application. They try to solve this by implementing standardized exams, try to prevent this application by saying second exams will be common or religion classes will be among the general exams but this is still not an adequate action.

Thus governments can regulate private schools, inspect them for basic standards, and create an accountability framework including a teachers' license, a core curriculum, and academic standards for students. Participants mentioned that in Denmark, Holland and Sweden schools are inspecting for the monitor of meeting some standards or not. But in Turkish education system, every step is predetermined and there is a great pressure to follow.

4.2.1.5.3. Nature of Governance

Michel (2001) stated that neither society can change by a decree nor schools. Some countries have seen the limits of top-down reforms being reached, reforms that come and go as frequently as do ministers of education. Educational systems are complex and cannot be steered exclusively, or even mainly, from the top. Educators must be analyzed the sources of complexity in education systems and the need to search for new forms of national direction that allow greater local latitude, while preserving national control and hence coherence throughout the system. This is possible when education is considered a public asset not just a private asset of human capital generating income flows during a person's working life. Joutard and Thélot (as cited in Michel, 2001) have also emphasized the need for equal opportunity to accompany the diversification of successful educational tracks and of approaches to teaching and learning. This means increased autonomy for schools, yet within a national framework to limit geographical and

social inequalities (Michel, 2001). One participant mentioned about the current situation in related with the autonomy and centralized management of education.

If we consider the infertility in the departments of program development and assessment and evaluation in education in faculties of education in the universities, there are a few experts on education who will support them when they have a right to speak loud on local governments. For this, it needs to have long time for reforms on education and to be a really widely planned activity.

In sum, old forms of governance, in both the public and private sectors, are becoming increasingly ineffective. 21st century transitions are likely to involve new forms of governance that break decisively with two of the primary attributes of today's governance systems. New departures in governance are, in turn, likely to be fundamental both for revitalizing democracy and for reaping the positive potential of technological, economic and social change. These changes will call for major advances in the practical skills and rules used in daily life by organizations and individuals, whether operating alone or in concert, locally or globally (Miller, 2001).

4.2.2. Technology

According to results of trend interviews technology is the second theme of the study. Participants deeply mentioned about the new implementations with ICT and the perspectives of how to use ICT in an effective way in K-8 schools. Figure (28) depicts the sub-themes of the Dynamics of Technology main theme.

Results indicated that even K-8 institutions are eager to adopt new technologies they might be constrained by school policies, the absence of necessary human resources, and the lack of funds to realize their ideas. Moreover some are located within buildings that simply were not designed to provide infrastructure that wireless technologies require, and thus is the end of reaching

many technology options. Participants mentioned that ongoing professional developments need to be valued and integrated into the culture of the schools. There is immense pressure placed on teachers to incorporate emerging technologies and new media in their classrooms and curriculum. The results are that the new investments are underutilized, not used at all, or used in a way that mimics an old process rather than innovating new processes that may be more engaging for students.

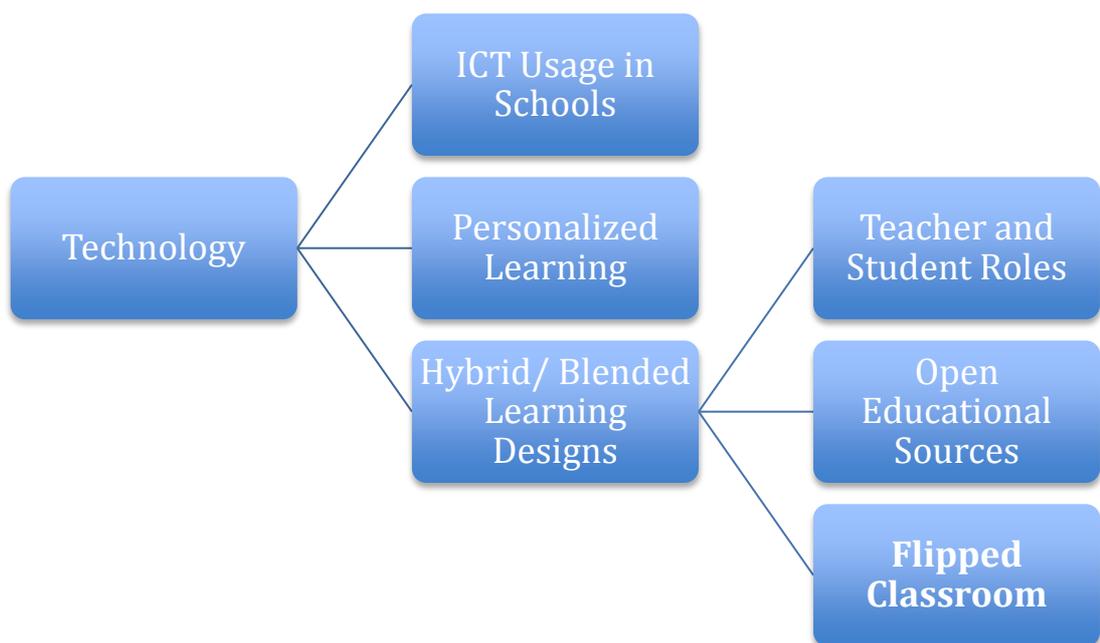


Figure 38: Themes and Sub-Themes of Technology

One participant explained her expectancies and observations according to technology.

Technology is going faster than educational needs so technological materials come to education as it island search for the ways to use. We need vica versa . we as educators need to dream and force engineers to do for education by this way we can effectively use technology. Otherwise we just be another market for technology consumption. I don't believe that there is a significant difference between skipping e-book pages via iPad or

a book's pages. Technology should give some additional facilities to educators.

Second, too often it is education's own practices that limit broader uptake of new technologies. Resistance to change simply reflects comfort with the status quo. In many cases, experimentation with or piloting of innovative applications of technologies are often seen as outside the role of teacher or school leader, and thus discouraged. Changing these processes will require major shifts in attitudes as much as they will in policy. For instance FATIH Project is the one of the hottest topics in educational policy today.

Interviewees mentioned about the huge cost of FATIH project and mentioned about the Bring Your Own Device as a solution. As the cost of technology drops and school districts revise and open up their access policies, it is becoming more common for students to bring their own mobile devices. A growing number of schools in other countries are launching 'Bring Your Own Device' (BYOD) programs so that students can use the devices they already own in class. This is happening as a result of how BYOD impacts budgets; schools can spend less money on technology overall if they focus their efforts on equipping the students who cannot afford their own devices. The relative new interest in BYOD programs has been accompanied by an attitude shift as schoolteachers and staff better understand the capabilities of smartphones and other devices that, unfortunately, still remain banned on many school campuses (Johnson et al, 2013). If we consider technology continues to significantly affect the way we work and communicate. The digital divide is now seen as a factor of education: those who have the opportunity to learn technology skills are in a better position to obtain and make use of technology than those who do not. Evolving occupations, multiple careers, and an increasingly mobile workforce contribute to this trend (Johnson et al, 2012).

Participants mentioned that the most significant development with regard to learning environments in the last decade or so has been the Movement to

Increase Opportunities and Technology (FATİH) Project. With FATİH, launched in 2010, MoNE aims to improve technological infrastructure in schools and encourage the use of information and communication technologies in education. The underlying goal of the project is to equip 40,000 schools and 620,000 classrooms across the country with information technology infrastructure and to provide students at targeted levels with tablet computers. Initially covering secondary education, the project, with an estimated budget of more than \$6 billion, will gradually expand to lower levels. There are five components: hardware and software infrastructure, provision and management of digital content, effective use of the infrastructure in teaching programs, reliable and measurable use of information technology and Internet, and provision of in-service training to teachers.

Teachers are pivotal to the project as they are expected to adapt to technologically enhanced teaching environments and alter teaching methods accordingly. However, an initial assessment with teachers suggested that inadequate provision of in-service training appeared to be a serious flaw in the project design. Unless teachers are equipped with necessarily skills and tools that are compatible with technological infrastructure, to what extent FATİH Project could yield to meaningful improvements in learning outcomes will remain as a significant question. Moreover, the evidence with regard to the impact of technological tools on learning outcomes is mixed, and there are only very few studies measuring such impact. Given the massive budget it requires, lack of clear evidence, and inadequate focus on teacher development, the FATİH Project stands as a high-risk investment by the Turkish government (Aydagül, 2013). One participant stated his ideas on FATİH Project to describe current situation.

Today, this project is not an achievable one but I see this as an investment that can be carried into the future. When looked generally, it is seen as a quite unnecessary investment because they wish all students have a right to reach a good education but there are huge differences in terms of the quality of education. Maybe private schools can achieve this because their

student profiles are different but I don't think that everyone provide training with tablets in all state schools.

4.2.2.1. ICT Usage in Schools

In 1970, Christie (as cited in Paludan, 2006), a Norwegian criminologist, published a book with the assertive title *Hvis skolen ikke fandtes* (If there were no School). Fortunately for the educational sector, his conclusion was that if school didn't exist then it would be necessary to invent it. He pointed out that if the purpose of the educational system was only to provide young people with the ability to read, write, and count, then it could be done in considerably shorter time than is actually the case. So we can ask a crucial question as If we didn't have today's schools, would we create today's schools?. In previous chapters we mentioned a lot about the change upon educational perspectives. And now in related with results changes in school concept will be highlighted. Let us assume that a surgeon from the 1800s walked into an operating room today where arthroscopic surgery was being performed. Can that surgeon perform the surgery? This surgeon probably would not even get what the procedure was. Moreover would not understand what the instruments were. But if a teacher from the 1800s walked into a classroom today, could he or she substitute as a teacher? If so, why would that be possible? Is it because of the educators of the 1800s were able to anticipate the needs of the 21st century and designed a system that perfectly fits our educational purposes today? There is another possibility that our industrial era schools have not changed to keep pace with our current understanding of teaching and learning (Caroll, 2000). Related with this example one participant stated that

Our schools should give up providing corporate education physically as well because it cannot be individualized education as long as it is

corporate education. Corporate education can be done like creating suitable student groups based on their interests. The meaning of karma education and corporate education should change because that the students at the same age are in the same class does not mean that they have the same educational needs. Considering the old times, students were coming to schools in almost same levels but now they are not in the same level. Attending kindergarten, working parents, or the information gained in kindergarten make a huge difference in primary level. I believe that knowledge and skills differences will increase in the following years. When students come to school, they will be equipped very differently. The knowledge and skill difference among children will attract the attention more because from now on knowledge and skill are not only gained at school but also there are many more resources for this.

Results indicated that there is problem with the current system because it does not meet the needs of today's learners and the demands of our information age economy. If the existed system does not fit our needs anymore the need for thinking about how to transform the educational system come out. We can poses a question, If the changes in education over the last 100 years had been as dramatic as the changes in medicine over that time, what would our schools look like today? One participant elaborated on this issue.

One of its reasons is that there is only one skill assumed valuable and important. For instance, academic skills are because of the fact that there is one valuable culture. I think the child getting into the school system cannot find his/her own existence in the school system. That's why differentiated education is very important. It is important that human beings to discover their own identity, to move considering their own knowledge and skills but people are also afraid of this. They think that differentiated education will cause chaos in the country. The society model, student model, exam model, and success model on our minds are still monotype.

Results indicated that in the role of school expectations according to knowledge transmission decrease but social relationships and critical thinking increase. One participant explained that The school's meaning changes as well. It becomes a place not servicing but requested. Think of an advance learner moving beyond the knowledge that you provided for him/hem. Here you are not a package

program/ someone giving information anymore. S/he is in the position of requesting knowledge.

Desk research results indicate that the technological landscape also shapes potential demand for education. New information technologies have transformed—and continue to transform—how people live and communicate, how enterprises do business, the kind of jobs that are available, and the skills that are in greater or lesser demand. Trends shaping education Reports also describe the growth of mobile phone subscribers has outpaced global population growth. Mobile telephony has been adopted even in the rural areas of poor countries and its use for accessing market information and banking services is growing. Similarly, the number of Internet users—most of them young people—grew by an estimated quarter of a billion people between 2000 and 2005 (OECD, 2010; OECD, 2010a; OECD, 2013; OECD, 2013a). In addition to that World Bank Reports stated (2010) these technological changes can improve the quality of service delivery, but research and field experience indicate that the new technology must be accompanied by significant changes in pedagogical methods. The ability of education systems to develop ‘new economy skills’ can help countries become more competitive. This implies changing the way educators are trained, increasing the supply of qualified educators, and improving the relevance of education curricula.

Furthermore, continuing rapid technological development has changed the way we handle our daily life. For instance, online services include banking, shopping, research and development. The rise of Facebook and other online communities and the escalating use of online advertising are key trends that illustrate how fundamental a role the Internet plays in most people’s lives. As adolescents and children are the most frequent users of online services and social networks, schools and teachers are increasingly faced with the challenges of educating and guiding students through the positive and negative aspects of the virtual world (OECD, 2013). One of the participants pointed the relationship between technology and education.

I think education will continue with low technology in the future. The most important part of education will still be the teacher. Overhead projector goes projection comes, blackboard goes and smart board comes but these do not change anything. Still the teacher will continue using these. You can count education, banking, and tourism sector as service sector but if you divide them among themselves in terms of their usage of technology, you will see huge differences among themselves. For example, considering the banking, you can see that they use more technology than the education and thanks to technology, all terms related to banking have changed. You can invest in money, purchase foreign currency, do whatever operation you would like, open up and close an account, send money everywhere in the world via your mobile. This means banking is not the same as before anymore. Technology transformed banking. Apart from this, we can tackle tourism as well. Today you can reserve a place, do check in, choose any place to go over the world in front of your computer. Technology can't be effective as it is on others. Education sector does not transform like banking or tourism sector. Education sector, the nature of education is not into this. Education is still a labor intense work. I think the effect of learner and teacher is much more important than the technology.

These results conclude that the sectors that we talked about before are all snapshots; you do something and it finishes at that moment. However education is a chain. Whatever you need to do in the bank, you can't spend your time every day from 8 to 5 in the bank but considering the nature of education, there are many factors alternating and connected to each other. Because education is a long-termed event and all parts are connected to each other like a chain. Besides, if you see a student as a customer, the quality of the customer affects the quality of the service (success) directly. The one getting the service contributes the creation of the services as well. One of the participants speculated that education would not change by the effect of technology in depth. Technology can help education by supporting resources or other facilities but cannot replace with it.

I don't think that a student that will start kindergarten today will get education in a very different system. Technology didn't help fasten the

process of education but helped us reach the information quicker than before. Today, we see that there is no technological infrastructure to fasten learning, decrease education costs. Even in a very small development in the technology people think that it will go forward and will change everything. For instance, when TV came out, it was valid for TV as well. With coming TV in the houses, people thought that we don't need education because we can do it via TV. In 1950, including Skinner, people thought that education robots can provide learning automatization. They claimed that we will create such a robot that it will go beyond the teachers and it will educate learner in a quite better way but it didn't happen at all. They tried to create many applications to provide automatization. They also thought that they can bring up people in the way that they want but they realized that it won't. Education is a low-tech work and it is an ambiguous concept and period. In this way it is not that much easy to shape the concept, to automatize, and standardize.

On the other hand there are people expecting to change education with this project but according to results participants are not agree with that.

As a result we can say that, if you think of the beginning of 90s, in those years people had more hopes for technology. At those times the discussions for science fiction movies or education were mainly on technology. There were more hopes for technology. However, now I think there is not many research about technology and I even don't think that there is not a creative technology at all because one is not better or more creative than the other. The coming one is just one new model of the other. People became more realistic.

4.2.2.2. Personalized Learning

Results indicated that personal learning environments are going to be one of the most remarkable challenges in the near future. Personal Learning Environments (PLEs) refer to the personal collections of tools and resources a person assemble to support their own learning (formal and/or informal). The conceptual basis for PLEs has shifted significantly in the last year, as

smartphones, tablets, and apps have begun to emerge as a compelling alternative to browser-based PLEs and e-portfolios. There has been a corresponding move away from centralized, server-based solutions to distributed and portable ones. Despite the use of the word ‘environment’ in the name, the notion of a physical or virtual space is somewhat irrelevant to a PLE. The goal is for students to have more control over how they learn in school, just as they do at home, and for teachers to set expectations that their students will be actively engaged in designing and supporting their own learning strategies. Personal learning environments rely on enabling technologies, especially cloud computing and mobile devices, that make the learning environment portable, networked, and personally relevant. PLEs enable students to determine the style and pace at which they learn while exposing them to technologies that they may not otherwise encounter in traditional classroom settings that will help prepare them for university and the workforce. PLEs are described as more about personalizing the environment and experiences at an individual level. The demand for personalized learning is not adequately supported by current technology or practices. The increasing demand for education that is customized to each student’s unique needs is driving the development of new technologies that provide more learner choice and control and allow for differentiated instruction, but there remains a gap between the vision and the tools needed to achieve it. The notion that one size-fits-all teaching methods are neither effective nor acceptable for today’s diverse students is generally accepted among K-8 educators.

4.2.2.3. Hybrid/ Blended Learning Designs

Results indicated that education paradigm is shifting to online learning, hybrid/ blended learning, and collaborative models. Students already spend much of their free time on the internet, learning and exchanging new information —

mostly via social networks. Online learning environments have distinct advantages over traditional campuses, including opportunities for stronger collaboration while equipping students with digital skills. Hybrid/ blended models, when performed successfully, enable students to travel to campus for some activities, enable students to learn at their own pace and style, whenever they want from wherever they are (7/24/365). These trends and challenges are a reflection of the impact of technology that is occurring in almost every aspect of our lives.

In the light of above-mentioned K-8 must address the increased blending of formal and informal learning. Traditional lectures and subsequent testing are still dominant learning vehicles in schools. In order for students to get a well-rounded education with real world experience, they must also engage in more informal in-class activities as well as experience learning outside the classroom. One participant mentioned that current attitude towards hybrid/blended learning designs.

According to study done by American department of education in 2009-2010 on comparison of education environments, it is seen that blended education is more successful in comparison to the face-to-face online education model. I think education system of forthcoming century will be based on blended learning because neither only internet education nor only face to face education, combination of both will be more useful in the future and I don't believe that there will not be any robot or communication tool replacing a good teacher. Skinner also spent 60 million dollars for teaching robot in 1960s, but this is not possible. Robots can train you, tutor you but cannot be a teacher. Teacher is humanoid. Courses are tutors. Blended does not mean that downloading your course notes into a website.

4.2.2.3.1. Teacher and Student Roles

One upon a time, teacher and student roles are sharply defined and segregated but nowadays roles are blurred and overlapped. The profile of a ‘traditional student’ is constantly evolving. Once defined by ‘school age’, this student attended school full time. Upon graduation, he or she encountered hurdles to further education in the form of jobs, families, and other adult commitments. In the past decade, computers and the Internet have opened a new world of opportunities for students of all ages, making it possible for more individuals than ever to access knowledge and to learn in new and different ways. The Internet has expanded access to information, removing both educator and learner dependencies on a limited stock of information resources. Education is limited only by the student's interest and ingenuity. New learning models enable the educator to serve as a learning facilitator, mentor, and guide for subjects that do not always require students to spend time in a classroom. Moreover, the Internet offers students in low-income and remote locations far more information than any single traditional library. In short, technology has greatly expanded the boundaries of the ‘traditional’ student. It takes more than access to technology to create a digitally connected world. In the School of the Future, technology will play an important yet supportive role. It will assist in inquiry, support content distribution, and increase efficiency. Technology will not be an end but a means to an end, driven by a rigorous curriculum and justified by its capability of enhancing education and learning.

In old paradigm the teacher engaged in a one-way broadcast of facts to individuals who are not in a position to collaborate with each other or with the teacher. The teacher is broadcasting information to the students, but is not learning from the students. Here in this new paradigm, participants mentioned that although participants stated that they are trying to use modern learning technologies to move away from this one-way, broadcast mode of instruction, they often find technology still being used in schools to reinforce one-way

communication and passive modes of learning. They want to encourage more two-way learning (not just two-way communication, but two-way learning in which the teacher also learns more and constructs new knowledge as the students learn and construct their knowledge). One participant told an anecdote:

... in a school they found that they had teachers who knew science, but who did not know how to use technology to improve learning. And they had students who did not know science, but they did know how to use technology. So they created collaborative learning teams of teachers and students, who combined their respective knowledge and expertise to construct new multimedia and web-based learning activities. The teachers learned to use the technology from the students, and in the process, the students learned science. As they did, some of the distinctions between the roles of the teacher and the student began to fade. They were learning from each other as learners with different levels and areas of expertise in a learning community, and the question of who was teaching whom became irrelevant.

Working together, the teachers and students all continued to learn more about how to use the technology, and they all continued to learn more science. In fact, the teachers, especially, began to learn more science than they had before. They were connecting to expert learners in science and to vast sources of information. This connectivity began to accelerate their learning (and the learning of their students) in ways that were never possible when they were teaching in isolated classrooms with only their own knowledge, a dated textbook and a static curriculum to work with.

The flipped classroom also constitutes a role change for instructors, who give up their front-of-the-class position in favor of a more collaborative and cooperative contribution to the teaching process. There is a concomitant change in the role of students, many of whom are used to being cast as passive participants in the education process, where instruction is served to them. The flipped model puts more of the responsibility for learning on the shoulders of students while giving them greater impetus to experiment. Activities can be student-led, and communication among students can become the determining dynamic of a session

devoted to learning through hands-on work. What the flip does particularly well is to bring about a distinctive shift in priorities— from merely covering material to working toward mastery of it. One participant mentioned that

When I enter the class I don't feel like the owner of knowledge because some of my students know different and supportive things according to issue. I like to know much more from them as they wait to receive some knowledge. I think teachers' role is far beyond transmitter of knowledge or even facilitator, we are like moderators. Whole group is learning each other and they create a new knowledge with inter-subjectivity. This is amazing.

An educator can connect to learners anytime, anywhere. Moreover, two of the participants mentioned that the teacher of future must absolutely have skill to deal with diversity. They were mentioning every kind of diversity ethnical, religious, learning preferences and expectations. One participant explained current situation as,

People tend to refuse all kinds of differentiation, but we should go over creating a common area by embracing the differences in order to live together. I don't think we need to be afraid of our differences. That's why the system does not want teachers to have a skill to deal with the differences, I think so the teachers do not improve these values, so they are not even aware of their prejudices towards differences. People do not ask the principle which different skills your students develop here, they only focus how much success they get on the exams.

4.2.2.3.2. Open Educational Sources

New models of education are bringing unprecedented competition to traditional models of schooling. Educational institutions are looking for ways to provide a high quality of service and more opportunities for learners. MOOCs (Massive Online Open Courses) have opened the doorway to entirely new ways of

thinking about online learning (Johnson et al, 2013). Many activities related to learning and education take place outside the walls of the classroom and thus are not part of traditional learning metrics. Students can take advantage of learning material online, through games and programs they may have on systems at home, and through their social networks.

Results indicated that openness — concepts like open content, open data, and open resources, along with notions of transparency and easy access to data and information — is becoming a value (Johnson et al, 2013). As authoritative sources lose their importance, there is need for more often duration and other forms of validation to generate meaning in information and media. Mistaken to mean free, open education advocates are working towards a common vision that defines open more broadly — not just free in economic terms, but educational materials that are freely copiable, freely remixable, and free of barriers to access, sharing, and educational use (Johnson et al, 2013). One participant stated that the context of education is changed dramatically.

Today we are discussing about to reaching information for 7 days a week, 24 hours a day and 365 days of year (7/24/365). This means we wearied our bikini to go north pole. Bikini is the dress code of industrial era and but weather conditions changed now. Africans have a word; they say that ‘when the music changes, dance also changes.’ We are not aware that music has changed. Education places have to change from now on. They have to be shaped based on the developing technology. The teacher should get rid of the approach saying that I have a yearly plan, daily plan and I will implement these in the classroom in the given time and go. The teacher should realize the music has already changed because the teacher should reach the different times. Learning environments are not only classes, desks anymore but we need to create places that learning can be shared beyond the limits. There should be a platform that friendship will improve even if the teachers do not want this.

4.2.2.3.3. *Flipped Classroom*

In most schools, students are not encouraged to do new things, using technology or take responsibility of their learning by individual study. For instance in a flipped classroom, uses educational materials on the Internet as a primary content strategy. New concepts and material are initially studied outside of school individually, thus preserving class time to refine mastery with discussions, group activities with classmates and problem solving. Result of interviews indicated that people expect to be able to work, learn, and study whenever and wherever they want. As Johnson (2012) indicated in last Horizon Report, it is also true for many of today's school-age children, who live their lives in a state of constant connection to their peers, social groups, and family. While some decry the constant flow of information as a distraction or worse, others see the opportunity to 'flip' expectations about what is homework and what is schoolwork by taking advantage of those connections as learning opportunities.

4.3 The Possible Scenarios for the Future K-8 Schools?

For the aim of scenario creation a new tool (interview schedule 4) was created in this study. In this tool there are short scenario narratives that represents the main ideas and possible implementation in education for each scenario. Totally 13 educators respond to these narratives and we elaborate on these scenarios. In the scope of this research question there are four future school context scenarios were created. Table 11 is depicting these four scenarios and influenced trends.

Before started detailed discussion of related findings of Scenario Interviews there is a significantly important point that needs to highlight. As mentioned above according to results *Globalization* and *Technology* are the major trends for the schools of the future scenarios in Turkey. On the other hand when

trends considered by *Schooling for Tomorrow Scenarios* are based on OECD research. In this research *Ageing Population, Demographic Movement* and *The Changing Economic World* presented as the major trends for OECD countries. When Turkish trends compared with the OECD Scenarios trends that derived from desk research this can be said that Turkish context is different in some points than overall OECD context.

Table 11: *Trends Influence to Scenarios*

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Globalization	X	X	X	X
Knowledge Intensive Economy	X	X	X	
Work and Careers	X		X	
Global Inequality Poverty		X	X	X
Cultural Diversity Transportation Urbanization		X	X	X
Educational Globalization	X	X	X	X
International Benchmarking	X			
Privatization Nature of Governance		X	X	X
Technology	X	X	X	X
ICT Usage in Schools	X	X	X	
Personalized Learning		X	X	X
Hybrid/ Blended Learning Designs		X	X	X
Teacher and Student Roles		X	X	X
Open Educational Sources		X	X	X
Flipped Classroom			X	

For instance in Ageing Population theme effected OECD Scenarios by seeking answers for questions as: What role should the school system play in meeting the learning and cultural needs of the elderly? What are the implications

for education budgets, given that pension costs are increasing as the population ages? Fewer children allows smaller class sizes: how should this opportunity be used? More years of schooling for the young? To invite adults back for more education? In addition to that some scenarios also discussed the broad socio-economic implications for schooling in the light of ageing population theme. Such as: What does it mean for young people to come into education with older parents and fewer or no siblings? As the population ages, should the school-leaving age, or the age at which people begin and retire from work, change? What effects might this have on society? And if the retirement age remains stable, who will pay for education as the ratio of pensioners to taxpayers rises? These are not the points researcher consider in scenario creation because the results of trends analysis are not indicated that issues.

On the other hand in when *Demographic Movement* and *The Changing Economic World* trends considered there can be similarities between OECD Scenarios and the scenarios which this study present later. *Demographic Movement* trend includes global trends in population, migration, and wealth. OECD scenarios claim that our planet is tending towards overcrowding, particularly in cities, with increasing diversity in OECD countries as people move between nations; inequalities between the wealthy and the poor are increasing at a record rate. These trends suggest questions that pertain directly to schooling scenarios of OECD. Urbanization of the population leads to strain on city infrastructure, including schools. How must schools develop to meet this challenge? In multi-cultural societies, schools must meet a wider range of family expectations and aspirations, as well as language backgrounds. Ultimately, schools may even be called upon to act as the key institutions for sustaining social cohesion. These issues pointed by OECD Scenarios also considered in future scenarios of the present study.

Furthermore *The Changing Economic World* indicates globalization and the emerging knowledge-based economy that are highly related with the findings of trend analysis. In terms of considering same trends would lead scenarios be

similar in some points. OECD scenarios put in to account that many economies have greatly reduced their dependence on industry and now rely more on services. In the new millennium, new forms of communication, primarily the Internet, have led to an increasing emphasis on knowledge and information as the key economic drivers. Moreover many institutions are racing to keep up, including the education system. Schools face two key questions: How can they use advancements in ICT to improve education? Secondly, how must they change to better equip pupils for the new challenges in today's information-driven world? With the service sector taking over from industry as the key economic driver, should schools be switching emphasis from fact learning to competence-building? Should they move from teaching to training? Much time and effort has been devoted to discussion of the new role of higher education in a knowledge economy, but the same cannot be said of schooling. Finally OECD scenarios also pointed global competition is cutting tax revenues and thus public funding for education. How will schools adapt? Diminish the number of schools? How should schools modify curriculum content in a globalized world, with additional languages and cultures gaining importance worldwide, both economically and politically?

First of all this is critical to mention about the structure of the scenarios. In methods section researcher gave many details according to scenario creation phase but before to start presenting results it is important to remind readers that these scenarios are not just results of interviews. Results of previous phases also support to create a set of snapshot scenarios.

The following scenarios are all snapshot because they are representing the possible photo of a probable future. These scenarios describe the end-state of a development path and only implicitly address the processes that resulted in that end-state. There is another point researcher like to highlight, in this study the most challenging task was to develop highly creative and multi-dimensional scenarios. Researcher challenged herself and participants to imagine the unimaginable to dream the impossible and think the unthinkable. No one knows all the answers but with this study they open up a discussion on future of education in Turkey.

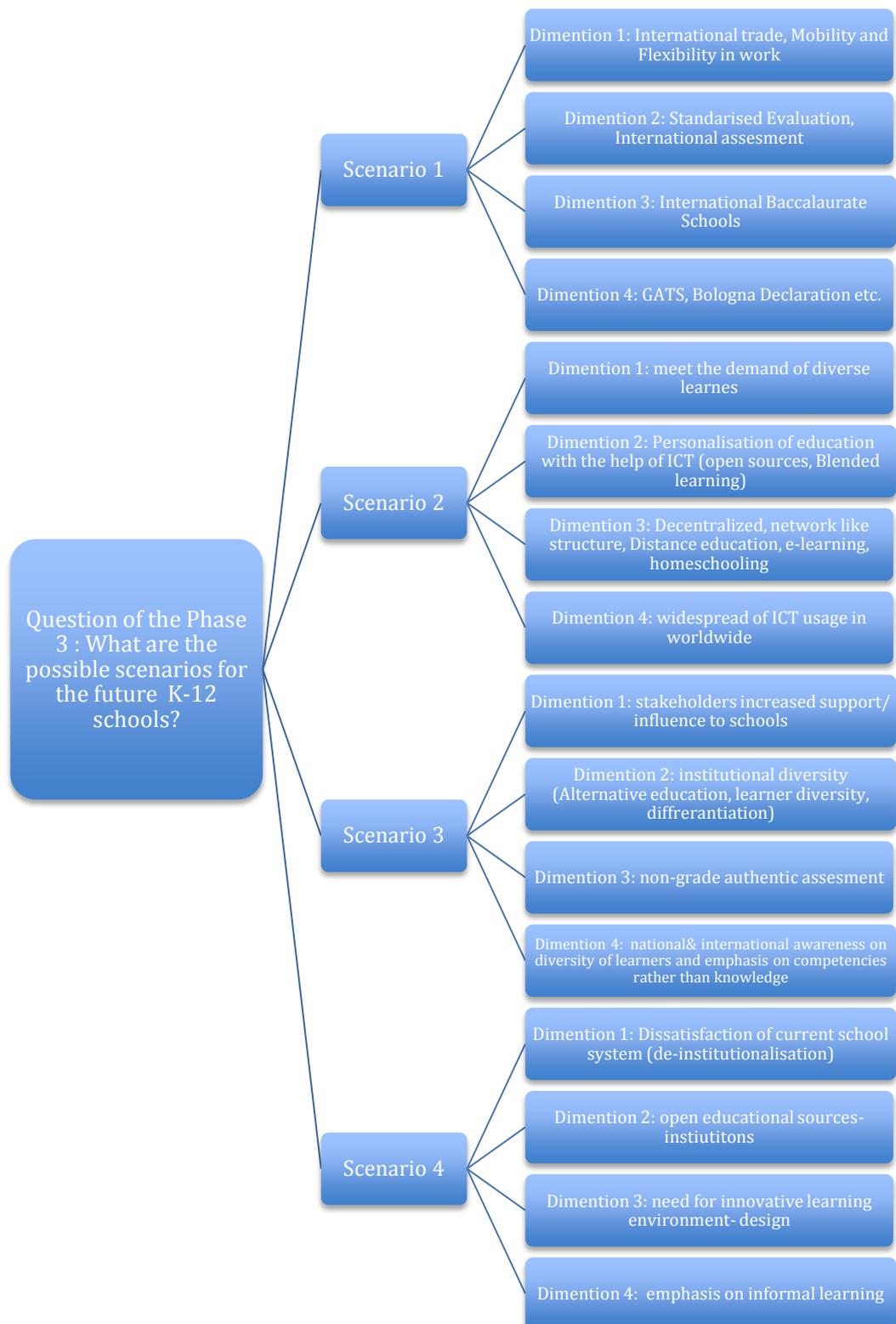


Figure 39: Overview of Research Question

4.3.1. Scenario 1

To derive Scenario 1 the hypothetical scenario was given to participants to elaborate. Question (1) Scenario 1 Framework: When examined the factors affecting the education, the most important of the current problems of Turkish education system is that youth of our country has quite low results in international exams. What do we need to carry our country into higher levels in international evaluations and to meet the needs of international education (exams, accreditation, education program, etc.)?

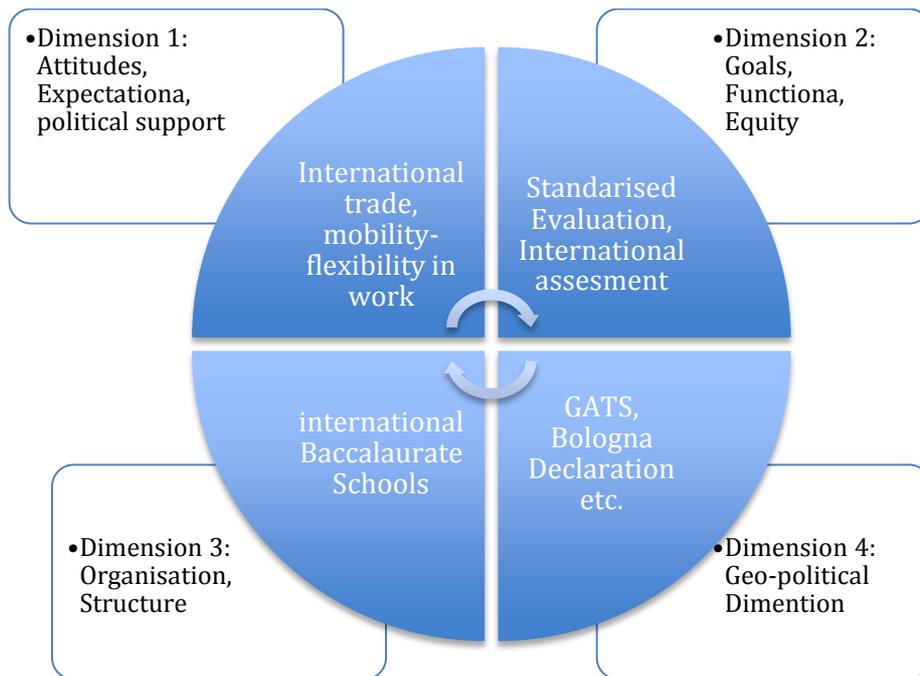
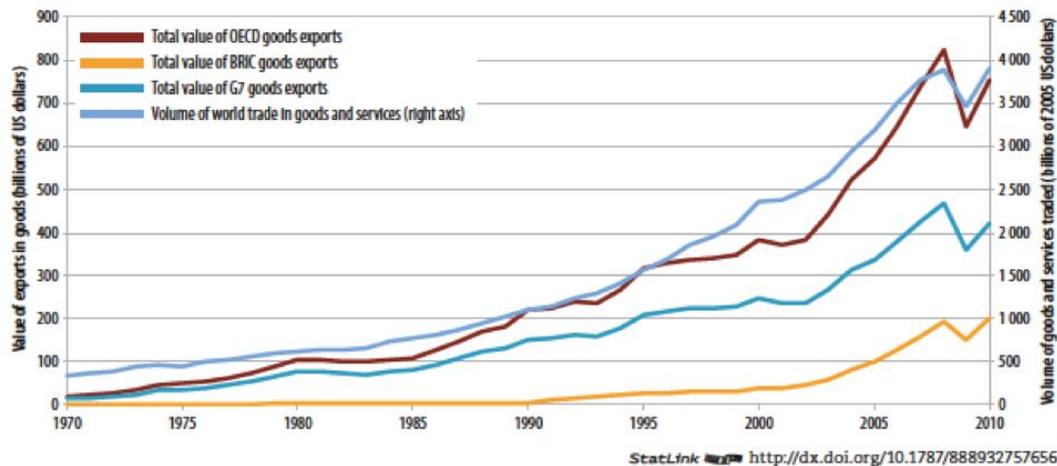


Figure 40: Dimensions of Scenario 1

4.3.1.1. Attitudes, expectations, political support

As we all know economic activity has become globally interconnected on an unprecedented scale. The global character of markets has become stronger through international agreements and technological advances that bring people, goods, and services together ever more quickly and less expensively. Multinational firms work across national boundaries to manufacture goods – increasingly assembled with geographically disperse component pieces – which are then sold in multiple markets. This growing integration of economies has an impact on strategies for national competitiveness, innovation, employment and skills. It can also play a role in shaping the attitudes and expertise that drive international trade and collaboration. (OECD, 2013)



Note: The export of goods and services here is a measure of global economic integration and shows the total value of goods leaving a country. Figures for both sets of data are seasonally adjusted to smooth the quarterly data. World goods and services data is calculated in 2005 USD, rather than simply USD, to make the annual volumes comparable, whereas the value of goods is simply the value in USD of each particular year.

Source: OECD (2012), OECD Stat: *International Trade (MEI)*.

Figure 41: Growing Importance of International Trade (Total value of goods exported by OECD members, BRIC countries and the G7 and the total amount of world trade in goods and service, 1970-2010)

Results indicated that globalization calls for greater individual mobility, more flexibility, and the openness to work with partners having different cultures and codes. Communicating in the partner's language is increasingly useful. All this means that demands on education are growing and call for rethinking the current curriculum, which is still tailored to the earlier 20th century industrial society rather than the 21st century post-industrial, global world. One of the participants mentioned that in the future, today's learners colleague probably be an Indian or Chinese. So, this is very remarkable situation to consider if we would like our nation have a pioneer role in global economy.

4.3.1.2. Goals, functions, equity

According to the World Bank 2020 Strategy, the Bank will continue to support the development and use of regular education data. It will support efforts by partner countries to measure both student achievement (i.e., learning outcomes) and the overall performance of education systems on a regular and systematic basis, and to use such data to inform education policies and investments. The Bank will invest also in the development of indicators that measure education system functions, collect data that correspond to those indicators, and produce analytical work. This work will dovetail with the efforts of governments and international agencies to develop new indicators for the quality and performance of education systems (World Bank, 2011). According to this context one participant stated that

One of the most problematic parts of our education system is that assessment and evaluation. Even we have serious problems in national exams not only in international exams. Considering the system of transition to secondary education, transition to higher education and changing education system which changes with each new minister of education, we need to discuss this assessment and evaluation issue seriously. Even I think teachers have serious assessment and evaluation

problems in their own exams conducted in their own classes so I believe that teachers have lack of information on assessment and evaluation. In-class, national, and international systems of assessment and evaluation should be in harmony with each other. If you can achieve this, this means you have achieved a great thing in education.

Here the important question is: Can information from assessments really influence education reforms? We can mention about a few examples: Uruguay launched a large-scale reform of the education system in the mid-1990s, triggered in part by a study based on two assessments of student learning conducted in 1990 among a sample of 4th- and 9th-grade students. The reform entailed targeted assistance for the poorest students; improvements in professional development for in-service teachers as well as salary increments; additional resources for schools; and training of school principals. In Sri Lanka, the first national assessment of learning outcomes, which was conducted in 2003, gave the country an objective measure of the cognitive achievement of its students. This knowledge enabled the government to introduce a resource distribution formula for quality inputs that would increase public resources allocated to the poorest schools relative to the richest schools. In the Kyrgyz Republic, an improvement of the existing school exit examination and university scholarship test allowed better measurement of learning outcomes for more than a million students in secondary schools and provided the basis for performance-based bonuses in two regions of the country. In the United States, low national performance relative to other rich countries on the 2009 PISA has spurred intense examination of its policies and practices and what it can learn from the countries that have outpaced it (Tucker, 2011).

More countries are measuring the reading and math competencies of their students through national assessment systems. And more countries are participating in regional and international student assessments (e.g., the LLECE, PIRLS, SACMEQ, PISA, and TIMSS tests) and benchmarking their performance against those of other countries. The number of countries participating in PISA,

for example, grew from 43 in 2000 to 65 in 2009, while the countries participating in TIMSS grew from 45 in 1995 to 65 in 2011. World Bank reports (2011) indicated that data on learning outcomes are still rare, sporadic, and limited in scope in most developing countries. Besides having more countries participate in regional or international tests and develop their national assessment systems, current measures of learning will need to expand beyond basic competencies in order to better assess the relevance of education systems to the world of work and to life in general. In particular, widely accepted comparable measures of important skills, such as problem solving, teamwork, and communication, are still notably absent from international assessments.

In addition to that all participants are agreeing with international exams can make progress in our system because these exams are focus on some basic skills that are survival. On the other hand some participants are mentioned that these exams are totally different from national exams and there is no need to concern about living same problems in the future.

Our curriculum is so knowledge based so it should be elasticated and should be more concept based. For example, in history classes, instead of teaching the sultans starting from Osman I to Abdulhamit studying leadership will be more comprehensive. When it is topic based, we cannot integrate these into international programs. A program outline can be given to private school and it is enough to give 3 main principles. Especially, it is important to give proficiency that needs to be gained at the end of a class and to test and evaluate them. When looked at the questions in the international exams, you see how qualified they are so I think even getting prepared for these exams increase the quality of education. However, our national exams are terrible now. That's why the quality of questions are higher in international exams, even if they are multiple choice questions, I think they are still important exams. I think schools focus on national exams a lot and so they waste their time because the only thing that the exam does is to range students.

On the other hand one participant suggest a strategy to improve the quality of evaluation in Turkish education system.

In national exams, not only multiple choice questions, but maybe also, as in international baccalaureate programs, open ended questions should also take place because the power of expression in these questions both demonstrates what students actually learn and guides us at the same time. In 100 points, 60 of them are open ended questions and the rest is 20 right/wrong and 20 multiple choice. The important thing in this matter is not focusing on the result; in fact, it is the method that students follow even if the answers are not correct. The point of view is not operation-based, it is actually problem solving-based. They call it following the method-based process. It should be considered as the person is the one who determines the problem and the machine is the one that does the work, but in our system people do the things that machines are supposed to do. However, the important thing is determining the problem.

Opposite of all these ideas, one of the participants mentioned that focusing on any kind of exam leads the system to be behaviorist.

You focus on one of the international exams and I think your education method should go over behaviorist approach because the most effective methods that will affect the preparations for the exams are the behaviorist contents. I think that the success of Asian countries on international exams is already thanks to their use of behaviorist approach. In Pisa exams, Koreans are as successful as Finns, but when we examine their educational systems, we see that they are totally different from each other. In Korean educational system proceeds on strict rules as it happens in our educational system, but in Finland's educational system is based on a notion that students' being absent of any kind of central exams. Both educational systems go opposite ways, but meet in the same direction.

One participant concluded all the arguments according to evaluation in a very remarkable way.

As a result, we can conclude that it is not possible for us to identify whether they are right or wrong without evaluating educational activities. Thus, all applications such as IB should be evaluated but when the system is all based on evaluation, it does not last long. This is an exam-based education system. The thing thought here is just to teach the exam. ... Of course there should be exams, international assessments. The important thing should not just to grow up students by focusing on the exams. The

students can go abroad or the students can come to our country. Thus, we need these international standards as well. Our purpose is not to reach the international standards but arrange our education in a positive way but I only think that preparing students just to answer the questions is something negative. In Finland, students are not exposed to any kind of test until they are 16 and this means that students can be successful without taking an exam. The aim of a school is not to prepare students for the exams; it is to prepare students for the life. Our schools prepare students for the exams, not for the life.

Last but not least, in interviews, participants mentioned that all that endeavor for international assessments and evaluations are to create a global human model for the 21st century.

Pisa and Timms serve at a same purpose: they are not interested in how successful their educational system has been or what should be done to be successful; on the contrary, they are interested in what have been done to come up to the actual aim and whether a role model devoted to the actual aim could be brought up or not. The main aim of the national exams is to determine whether minimal global labor necessary for the economy could be brought up or not. Asian countries paying attention to the technological applications are working hard to get higher results, especially in Mathematics since it plays a key role in this matter. It is considered as the more students get better results in Mathematics, the more people who are able to be adapted to technological society will be gained. Therefore, countries pay more attention to this subject. It is also an important subject in 7th Frame program.

4.3.1.3. Organizations and Structures

As we all know there is an internationally recognized educational organization called International Baccalaureate. The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect. To this end the organization works with schools, governments and

international organizations to develop challenging programs of international education and rigorous assessment. These programs encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right. They promote intercultural understanding and respect, not as an alternative to a sense of cultural and national identity, but as an essential part of life in the 21st century. In the future there can number of this kind of learning organizations increase or another internationally focused school model come out. One participant highlight the international school issue.

When we look at the U.S. 50% of IB schools are state schools. Since people who live in a particular area want their schools to follow an international program, these kinds of schools are established. It is a school model that has been established to fulfill the need of people who are in global mind. IB schools aim to form a human model who is able to find a job in circumstances that upcoming global economy creates. Act local, think global. Parents want to see the model that IB program requires in their children; therefore, they send their children to these kinds of schools. In these kinds of schools, parents do not have any kind of academic doubt. For the ones who have any kind of doubt different schools could be established. There is no such rule that all schools must be served for the same purpose. First, we need to accept the fact that every person has different needs and interests. When different kinds of schools are established, it does not mean that a lot of different people will emerge and the society will be torn apart. It is not a bad thing for people to be interested in arts or sports or any kind of other things. It is not necessary for all students to be interested in taking exams all the time.

4.3.1.4. The Geo-political Dimension

There are several trends in regions and organizations that identify assessment and quality assurance as being driven by international mobility. From the inclusion of education in the General Agreement on Trade and Services (GATS) to regional agreements, it is clear that the ability of students to transfer

credits and study in international locations requires a comparable curriculum or set of achievement levels. This has been manifested in several different ways. The Bologna Declaration in 1999 was part of a process that aimed at creating a European Higher Education Area by making academic degree standards and quality assurance standards more comparable and compatible throughout Europe. The Lisbon Recognition Convention is an example of a new generation of recognition conventions. It also highlights the significance of assessment and its relevance in recognizing qualifications that ensure mobility across higher education institutions. The Organization for Economic Co-operation and Development (OECD) was originally designed to promote economic growth, and its membership is comprised of the world's major industrial democracies. Education has been part of OECD's portfolio since its inception, but in 2002, a Directorate for Education was constituted. All that trends show us there is a tendency to create a global human model and facilitate the mobility of educated labor.

4.3.1.5. Summary of Scenario 1

Table 12 : *Summary of Scenario 1*

Attitudes, Expectations, Political Support	<p>Globalization is the major trend in this scenario for this reason education system will be under the high risk of abolishing cultural and educational values.</p> <p>Unsatisfaction of nationally prescribed goals of education.</p> <p>Meed the need of raising global citizens who will be able to work in multicultural, multinational and flexible occupational global economy.</p> <p>Basic philosophy is based on the dimensions of global citizen. Basicly there can two different models can</p>
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come out. First global citizen can mean act well in global market and the intended outcome is to be successful in international evaluations. Second global citizen can means people who cares about global issues and problems and be against any kind of discrimination.

Goals And Functions

21st century skills are the competencies that expect for the labor market of global economy and schools gave emphasis on them.

Service learning and citizenship education would have great importance to create a national- global synthesis among learners.

Need to establish an international framework for schools. Much attention focuses on the curriculum, with many countries operating a common curriculum and assessment system – aimed at enforcing standards or creating greater formal equality or both.

International exams will be the main tool for evaluation of student achievement and need be careful not go back to behaviorist way to succeed.

Formal certificates seen as main passports to economic/social life.

This system can cause a great competitive environment in schools.

There will be a great emphasis on lifelong learning to meet the demand of international trade.

**Organizations
And Structures**

Increased the rate of IB like schools and/ or international schools.

Increased number of international exchanges among institutions.

Accreditation and international protocols will be the hottest topic of education

There is a risk for culturally diverse students and low income students to make high quality education reachable.

Highly demanding curricula are the norm for all students.

School diplomas continue to be major currency, but other forms of competence can come out for broad set of talents. Increase the value of having a diploma and additional certificates to proof competencies.

If government cannot meet the demand of society, privately run educational institution rate can increase.

Innovative developments of assessment, certification and skills recognition for broad sets of talents.

Increased ICT use in schools but not radical change to organizational structures of teaching and learning.

The Geo-Political Dimension

Globalizing pressures, including growing use of international surveys of educational performance.

International networking of students and teachers will strengthen. Rate of e-twinning, Erasmus and Comenius like programs can increase.

Substantial involvement of multi-national as well as national companies in schools (but close attention given to widening gaps).

4.3.2. Scenario 2

Researcher inquires the Question (2) to create Scenario 2. In this case scenario framework states: This scenario does not include how technology will be transferred into the educational environment; it includes all kinds of regulations

related to a personified more transparent and reachable educational resources. In this scenario, beyond the use of technology actively, the aim is to discuss how to use education within the frame of particular standards as a tool that meets the learner's needs and interests. When it is mentioned as personalized education, it does not mean, 'individualized education'. It is aimed for individuals to reach particular standards with their own interests and abilities.

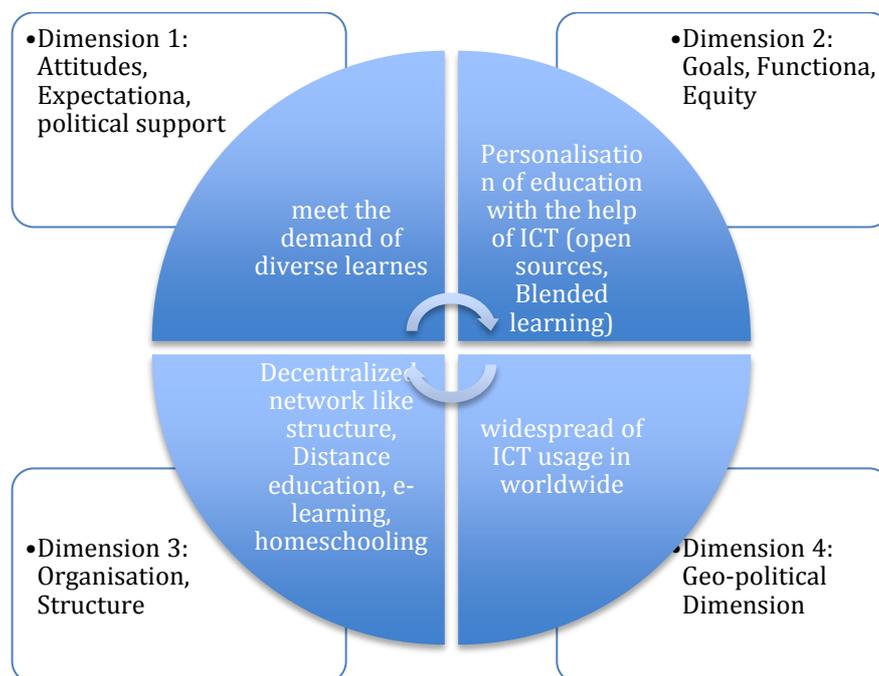


Figure 42: Dimensions of Scenario 2

4.3.2.1. Attitudes, expectations, political support

Schools are not accessible for all learners at all times, but during the 20th century they represented a cost-effective way to get almost all children through a basic educational threshold. They have not always generated deep understanding

and love of learning, but they have trained generations of young people in the rules and rhythms of industrial organization.

The role of communities, partnership and support beyond the classroom play a significant role in the current vision of personalization. From extended learning provision to home-school partnership, mentoring to work-based learning, a range of community resources act as powerful supports for educational attainment. It may also be that learning in authentic and voluntary settings, through relationships that are not formalized in the same manner as those of the school, adds force to the motivation and depth of the learning experience. We know how much factors such parental involvement; peer group, community expectations and home-based learning resources make a difference to educational achievement. Many different ways to harness them creatively have opened up over the last decade. How would they be involved systematically in a personalized education framework? Learners and professionals will be more mobile, and may carry far greater volumes of data with them through digital and wireless technology. In related with this findings one participant stated that ,

Our vision is of schools staffed by confident, trained practitioners using classrooms equipped with dependable, exciting technology to raise attainment and encourage positive and independent attitudes to learning. The legacy for the future will be improved standards of achievement, a collaborative and skilled work force of teachers and support staff, an outstanding pool of resources, skills and knowledge and an appetite for learning.

Here in this scenario personalization of education and open educational sources are crucial. For instance, students choose to study one of 23 world languages offered in Rosetta Stone's online classroom. Each student can work through the curriculum at his or her own pace under the guidance of a world languages instructor at the school who may not know the language but who is an expert in facilitating language learning, goal setting, and personalized practice offline. According to a participant, the personalized nature of the program

requires teachers ‘to meet each child where he or she is and differentiate support and curriculum on the basis of language and learning style rather than grouping or whole class. That's a necessary shift in the role of the teacher’.

Many educators wonder whether the concept goes far enough in preparing students for the wide array of learning opportunities outside the classroom. One participant pointed that,

We consider every child as individuals. Even if they are just children, they have an authentic existence. They have requests and desires, and we want them to reflect their desires into their education. Of course, we accept that it is different for every individual. The current system expect students to fit in and the one who does not fit is expelled or qualified as incompatible. However, it is in that kid’s nature and if you can accept that every person is different, you will understand that not everybody needs to do the same things. The desire of learning and curiosity are in children’s nature. Thus, our aim is to create environments that children can learn naturally and guide them in those environments. The system is in a competitive structure since it aims to raise individuals that are able to compete in the economy. Under these circumstances, the less time is given to actions such as monitoring students, trying to recognize them and observing and competing with other students becomes the main aim.

In addition to that results indicated that K-8 must address the increased blending of formal and informal learning. Traditional lectures and subsequent testing are still dominant learning vehicles in schools. In order for students to get a well-rounded education with real world experience, they must also engage in more informal in-class activities as well as learning to learn outside the classroom. Most schools are not encouraging students to do any of this but flipped classroom uses the abundance of videos on the Internet to allow students to learn new concepts and material outside of school. The approach is not the best but the growing popularity of the many nontraditional alternatives to schools that are using more informal approaches indicates that this trend is here to stay for some time (Johnsen et al, 2012).

Technology can also help children with special needs overcome many of

their difficulties, so they can be included in lessons, and access a wider curriculum. For example, some devices can help learners with physical difficulties to use a computer, and enable them to access the same curriculum as their peers. There are some software to meet a student's particular needs (visually or hearing impaired), can also help to motivate them. For some students access to appropriate technology solutions provides a chance of participating in society and realizing their full potential. In related with this participants stated that,

Everything in front of us is all about technology. Back in the days was the technology used? Of course it was. The use of overhead projector or the use of television, and even the use of ball-point pen is considered as the use of technology. In the past, there was science but now there is both science and technology. In the future, a third concept may emerge... In fact, we can call it as re-constructionism approach because technology needs to be like a pen. This means as teachers use academic sources constantly, now students should be able to also use this technology in the same way... I don't think technology should be taught as a different lesson; on the contrary it should be an integration of all lessons... I don't believe in an education system that schools ignore all socializing elements of life. Using a computer or using communication technologies is not a school and any environment that I am using these elements cannot replace schools.

4.3.2.2. Goals, functions, equity

Results indicated that as information technology becomes more mature, it should by 2025 and through the use of interactive systems contribute to increased productivity in the education sector and this would make more room for personalized education. The problem is circular: the educational sector has no tradition of thinking of technological solutions while detailed knowledge of conditions in education is a prerequisite for the development of technological solutions for it. The use of information technology can contribute to a personalization of teaching methods. By developing programs that are designed to

differentiate between their users, products can fit individual requirements far better than any book and relieve the teacher of much of the routine work, so freeing up time to spend with the individual student. If the year of birth is abandoned as the criterion for starting in school in favor of a more personalized evaluation, even classroom teaching may become far more personalized than it is today (Paludan 2006). One participant gave examples on the issue.

I don't consider school as a place that only transfers information. The school has a lot more meaning considering as a place of socializing, solving social problems. Therefore, I cannot adopt an idea that education should be preceded by only the technology. I think education should cover technology, not vice versa. Technology should be a part in the education but it should not be bigger than the education itself. It should not be bigger than face to face education.

Personalization is not purely a function of choice between alternative supply channels, therefore, but of shaping and combining many different learning resources and sources of support around personal progression. It has radical consequences for many aspects of our current system. But those consequences are uncharted, precisely because they depend on the interaction of many different factors (Bentley & Miller, 2006).

One of the trends of the future will be the use of mobile devices and wireless networks for education. Mobile phone use is widespread today, and, increasingly, students and young people also use handheld computers and other mobile devices. This leads us to conclude that the pedagogical use of wireless devices will be one future challenge. Participants suggest that future classrooms are likely to be organized around Wireless Internet Learning Devices (WILD) that resemble graphing calculators or Palm handhelds, connected by short-range wireless networking. WILD learning will have physical advantages that are different from today's computer lab or classrooms with many students sharing a single computer. According to interview results, these differing advantages may lead to learning activities that deviate significantly from today's images for

computer- and technology-based learning activities. The main reason for the pedagogical use of mobile devices is, first of all, to enhance collaborative learning through cognitive interaction using mobile applications and cultural artifacts; and interaction among the student both inside and outside of the schools and classrooms as well as knowledge building communities. In addition to that one participant gave some strategies to use ICT in education.

Let's think about it especially for the educational institutions that have become prominent and branded. A person who comes from Mersin will not have to come and get a diploma from a private school in İstanbul. He/she will be able to connect from Mersin and take courses from any private school he/she wants. It needs to be specified that in which class levels and how it will be done. Today, you are able to take online courses from many prestigious schools in America (as in Stanford). Constructions in terms of online courses may occur as in 10% for elementary school, 30% for middle school and 50% for high school.

Multidisciplinary collaboration between technology developers and educational designers need to find ways to apply virtual spaces, simulations, game-technology or mobile applications to learning. The core message of this strategy is that our rapidly changing society necessitates new forms of participation. Modern working environments involving intensive collaboration, expertise sharing, and social knowledge construction are permanent, and therefore contribute to setting new norms for educational standards. The pressure to develop responsive pedagogical practices is evident. Within this quest, pedagogical approaches that seek to utilize advanced technical infrastructures to foster higher-level processes of inquiry-based interaction have been considered most plausible. By combining the ideas of collaborative learning and networked technology, these approaches aim at turning classrooms of students into communities of learners and learning situations into challenging and interesting projects with authentic problems. Such inquiry activities provide a valuable context for learners to acquire, clarify, and apply an understanding of concepts in different domains.

The underlying technologies needed to construct a personal learning environment are relatively straightforward and readily available now. For example, a person's smartphone or tablet and the growing collection of apps they have chosen to download directly represents their assortment of interests. With hundreds of thousands of apps available in multiple marketplaces, it is easy to see how no two people share the exact same set of apps. Everyone has distinctive preferences and approaches learning and exploration differently. This is the basic premise of personal learning environments. Many educators now believe that the ways we learn informally can, and even should, inform the experiences we create at school. Though effective personal learning environments center around the learner and not the technology, personal learning environments draw significantly on enabling technologies and tools. Cloud computing, for example, allows users to easily store the content they want, and cloud-based productivity tools such as Google Apps and WikiSpaces enable them to share their content with others, gather new and relevant items, write personal commentary, complete assignments, and more. YouTube, iTunes U, Facebook, and other social media and open content platforms provide users with an outlet to discover new content and disseminate their own. Using a mobile device or tablet as the home for a PLE is a natural and intuitive approach that makes it both easy to access and portable. The essential idea behind personal learning environments is that students are put in charge of the learning process, with a focus on how they can support their own needs and preferences. The goal is to give the student permission to make their learning as effective and efficient as possible.

In concept, personal learning environments would encourage students to approach learning in ways best suited to their individual needs. Visual learners, for example, might be able to obtain material from a different source than auditory learners. Students using PLEs may further benefit from the practice of keeping track of, and curating, their own resource collections. Personal learning environments are seen as a way to shift the control over learning — particularly its pace, style, and direction — to the learner. When building their own environments and collections of

resources, students are learning new research and content aggregation tactics, perhaps without even knowing it. Many software and service providers are looking to become the next generation portals for personal learning. Schools experimenting with PLEs have turned to Symbaloo [go.nmc.org/symba], Netvibes [go.nmc.org/netvi], Diigo [go.nmc.org/diigo], and Cengage [go.nmc.org/cenga] for simple dashboard solutions, or places to tag, store, and share content. Teachers can post predetermined lessons with educational components chosen by the student, and reflective of their interests. Providers such as the newly launched Junyo [go.nmc.org/junyo] integrate analytics to measure student learning across many different platforms and learning environments.

Instead, personalized education might offer a just in time approach which put together separate modules to reflect the needs of a particular individual learner, but left the underlying modules of learning, curriculum content and so on as standard and 'factory produced'. A personalized system offers a bigger, more diverse catalogue to the informed shopper. Arguably, this is best practice for schools and companies today. What other possibilities can we imagine? Imagine a catalogue that consists of items you invent, design and conceive yourself and the supplier is more of an assistant who connects up with you momentarily through a vast, continuously reconfigured network. This does not just build on the century old model of the mail order catalogue if it takes us beyond the static and passive position of the consumer. In this post-industrial catalogue, which the producer-consumer or prosumer can publish as their personalized version others might then build on, the crucial ingredient is the value added by the individual themselves. Their capacity to invent, design and then co-produce is what distinguishes this version of personalization from mass-customization (Bentley & Miller, 2006).

Imagine an Internet portal that you own and control and that contains your health records, financial assets, work achievements, clothing designs, furniture plans, music mixes, multiple levels of networks for: friends, acquaintances, colleagues, entertainment, debate, local action, global voting. In this personal gateway to the world everything is organized according to your needs rather than how institutions package, own or credential things.

This version of future post-industrial personalization moves past the need for fixed categories and product boundaries through which to exercise choice, and builds on a fluid, self-organizing model which is capable of generating more spontaneous responses to articulated need. Learning is at its core because learning is the source of personalization. Only it is not the learning related to meeting the requirements of a test set by someone else, but learning that is motivated, acquired and expressed through personalization. Current ambitions for reform, public or private, do not target the prospect of a post-industrial world. More common is the strong opposition elicited by even modest hints at alternative approaches, like the emerging ‘open source’ and ‘copy left’ movements. That is why it is useful, as part of an effort to understand why and how to advance personalization in education, to consider the prospect of versions that go beyond extrapolations rooted in the industrial past (Bentley & Miller, 2006). In related with the literature one participant mentioned that,

The prize is immense: an education system based on need, an education system where choice is available for the many not the few; an education system where the system is molded around the child, not the child around the system; an education system that identifies the true potential of every child and then gives them the means to achieve it. It springs from the awareness that one-size-fits-all approaches to school knowledge and organization are ill adapted both to individuals’ needs and to the knowledge society at large. But personalization can mean many things and raises profound questions about the purposes and possibilities for education.

4.3.2.3. Organizations and Structures

Results indicated that one characteristic of the knowledge society is organizational structures that are far more decentralized than before. The rigid hierarchies of the industrial society are replaced by looser, network-like organizational structures. Knowledge intensive tasks require independence,

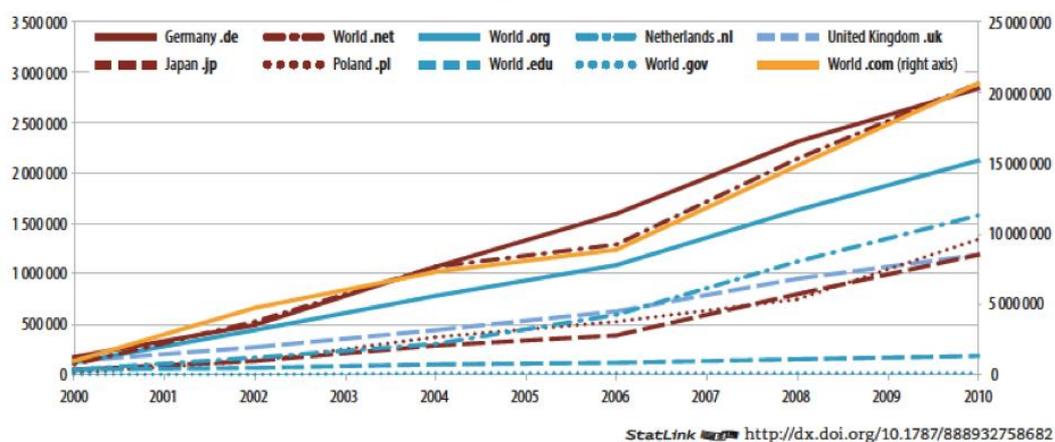
commitment, and the responsibility of the individual employee. The business community will increasingly want the educational system to produce those qualities, which cannot be forced; they have to be fostered through a more personalized educational system. One participant elaborate on the issue,

Over the last 60 years, a fundamental recasting of industry, employment, technology and society has transformed the requirement for education and training – not only driving the education system, but introducing new ideas about lifelong learning, personalized education, and self-directed learning. ... we want to move beyond them towards excellence, we need a new sort of system that is not based on the lowest common denominator. The central characteristic of such a system will be personalization – so that the system fits to the individual rather than the individual having to fit the system. This is not a vague liberal notion about letting people have what they want. It is about having a system which will genuinely give high standards for all – the best possible quality of children’s services, which recognize individual needs and circumstances; the most effective learning ... which builds a detailed picture of what each child already knows, and how they learn, to help them go further, and, as young people begin to train for work, a system that recognizes individual aptitudes and provides as many tailored paths to employment as there are people and jobs.

4.3.2.4. The Geo-political Dimension

Computers and information technology have become an integral part of daily life for everything from business to entertainment, as well as for social interaction. Once a primarily Anglophone medium, the Internet is now a completely global space that is transforming almost all aspects of our lives. Our language reflects this change: words like google, tweet, skype have become verbs that are incorporated seamlessly into conversation. For education, complex pedagogical and technical questions remain in determining the best way to support and guide teachers in their use of technology in the learning process. Students can also benefit from basic guidance in their use of technology. For example, they often need help in determining the quality and objectivity of

information found in search results that may appear to be rigorous research, but is often from biased or dubious sources (OECD, 2013).



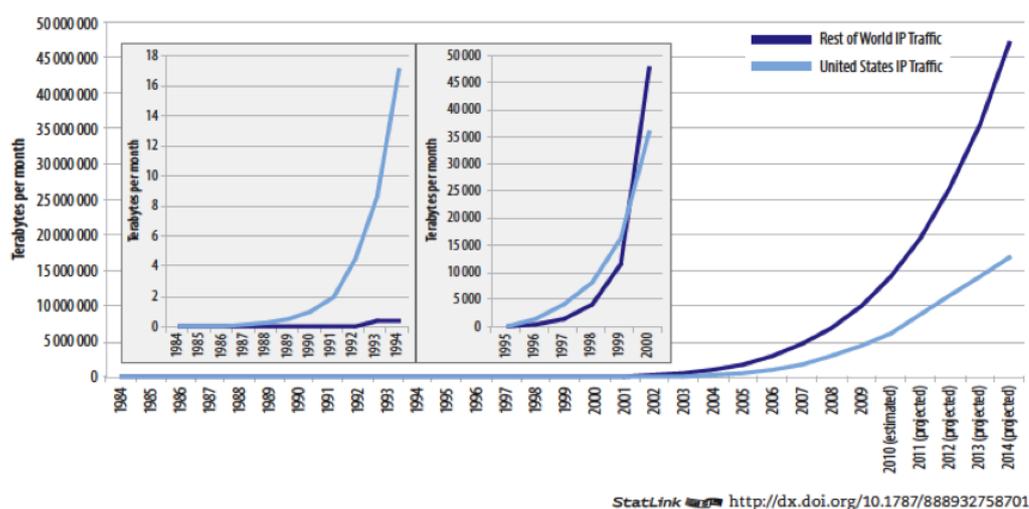
Note: Domains are the suffix letter strings attached to the end of web addresses that identify the site's origin or type. Every country has a unique domain suffix and there are also worldwide topic-related suffixes (.org or .edu). Data presented here include the top five OECD country domains, as well as the top five world domains, ranked according to 2010 figures.

Source: OECD (2011), *OECD Communications Outlook 2011*.

Figure 43: Internet Expanding Worldwide (Web servers by domain, 2000- 2010)

The increase in the amount of global Internet activity (the flow of traffic, not just the number of websites) has been so rapid that it is difficult to grasp conceptually. The figure below illustrates that during the 30 years between 1984 and 2014, the volume of Internet activity increased exponentially. During the late 1980s and 1990s total IP traffic in the United States more than doubled each year until 1995, when it increased tenfold. It was not until 1995 that global IP traffic similarly began to climb, increasing so rapidly that by 2000, IP traffic from the rest of the world had surpassed the volume from the United States. These dramatic increases can be attributed to numerous phenomena, including the proliferation of mobile devices (particularly Internet-enabled devices like smart phones and tablets), an increasing number of Internet users, faster broadband speeds, more affordable connectivity, and greater use of video and voice over protocol (VOIP,

for example, Skype) online (OECD, 2013).



StatLink  <http://dx.doi.org/10.1787/888932758701>

Note: Internet Protocol (IP) traffic, is the amount of data exchanged between different IP addresses (unique numbers assigned to every device using the Internet). This is essentially a measure of the volume of Internet activity. Terabytes are a unit of digital data equal to 10^{12} bytes. The maximum figure on the y axis of 50 million terabytes is equal to 50 exabytes.

Source: OECD (2011), *OECD Communications Outlook 2011*.

Figure 44: Global Internet activity rising exponentially (Global IP traffic, 1984-2014 (projected))

When all these improvements happen in worldwide, in Turkey FATİH project is one of the most recognized projects in education sector. As we mentioned before In this project, it is aimed to provide ICT equipment to classes in order to achieve the ICT supported teaching until the end of 2013 in related to the goals that take place in the Strategy Document of the Information Society, the Development Report, the Strategy Plan of our Ministry and The Policy Report of ICT that have described all activities of our country in the process of being an information society and have been formed within the scope of the e-transformation of Turkey.

Moreover open educational resources (OER) are growing in breadth and quality, as is the use of these materials in classrooms, networks, and school

communities worldwide. The use and adoption of OER materials is increasingly a matter of policy in schools, especially in the many disciplines in which high quality educational content is more abundant than ever. Understanding that the term open is a multifaceted concept is essential to following this trend; too often it is mistaken to mean simply free of charge. Advocates of OER have worked towards a common vision that defines it more broadly — not just free in economic terms, but also in terms of ownership and usage rights. Open content uses Creative Commons and other forms of alternative licensing to encourage not only the sharing of information, but the sharing of pedagogies and experiences as well. The goal is that OER materials are freely copiable, freely remixable, and free of barriers to access, cultural sensitivities, sharing, and educational use.

Government leadership can support directives to create policies that acknowledge the potential of OER and allocate money specifically for its development. One region of the world that has made considerable advances toward the uptake of OER is Europe. In 2013, the EU identified the development of OER as one of three actions of the Opening Up Education initiative proposed to bring the digital revolution to schools and universities. The initiative's related web portal is an expansion of an existing community that has been serving teachers since 2002, and it allows teachers, students, policy makers, and stakeholders to access existing European OER and forums where members exchange their experiences and ideas on OER practices, among other resources. Further, the EU has funded projects such as Policies for OER Uptake (POERUP), which has compiled a global inventory of over 300 national and large-scale OER initiatives to provide.

4.4.2.5. Summary of Scenario 2

Table 13: Summary of Scenario 2

<p>Attitudes, Expectations, Political Support</p>	<p>Not just about integration of ICT to learning environment. This scenario is about everything that makes learning environment more accessible, transparent and tailored for learners in frame of standards. ICT is just a tool not the main aim for learning environments. There can be supportive courses for diverse learners or some open education facilities for homeschooling, physically disabled and any other group that have difficulty to access education.</p> <p>There is a strong belief of we live in a diverse society, all students need different support but some groups especially (disabilities, different mother tongue, low SES, drop out students) intensive intervention. We can support or facilitate their educational life with a different mechanism rather than school.</p> <p>The demand of labor market is increasing everyday there is a strong need for well-educated labor. On the other hand poverty rates are increasing in all over the world and this is automatically affecting dropout rates. This challenging situation leads us to create some new approaches in education. Such as online education.</p> <p>Open system for diverse learners, learners with disabilities, learners living in rural areas or low SES students that not able to access high quality schools or to support lower achievers. Create the innovative ways to access all kind of learners to system. This differs by its stronger knowledge focus that is needed to fill the learning gap for the sake of disadvantaged.</p>
<p>Goals Functions</p>	<p>And The biggest driver for change is assessment for learning and the use of data and dialogue to diagnose every student's learning needs. ICT enables students to demonstrate achievement in ways which might not be possible with traditional methods</p>

Personalization demands a radical approach to school and class organization based around student progress. School schedule can be based on the personal choice. Computers can improve independent access for students to education.

Educational inclusion for learners with special needs. Students with special educational needs are able to accomplish tasks working at their own pace. Visually impaired students using the internet can access information alongside their sighted peers. Students with profound and multiple learning difficulties can communicate more easily. Students using voice communication aids gain confidence and social credibility at school and in their communities.

The range of choice available to each student or family at a given time. Online courses will be reachable from out of school. Increased ICT confidence amongst students motivates them to use the internet at home for schoolwork and leisure interests

Minimum set of standards and these standards will be broader. (at least one foreign language in intermediate level, and learner can choose what this one language will be)

Innovative use of ICT, not uploading all material to software but creating materials that allows student interaction and go beyond that material.

Which builds a detailed picture of what each child already knows, and how they learn, to help them go further, and, as young people begin to train for work, a system that recognizes individual aptitudes and provides as many tailored paths to employment as there are people and jobs

The lifelong learning function is more explicit. Possible reversal of trend to longer school careers, but less clear-cut boundaries between school participation and non-participation. Inequalities reduced but diversity widens.

Personalization means curriculum choice and respect for students, allowing for breadth of study and personal relevance, and clear pathways through the system. ICT enables greater learner autonomy and enables tasks to be tailored to suit individual skills and abilities.

Learning is not limited with one school setting learners can reach wide variety of other institutions to get credits. Increase the use of mobile devices and wireless networks for education.

Organizations And Structures

As is already beginning to happen, groups of local providers might share common resources and offer each other access to their specialisms, in order to broaden the range of curriculum choice available. Learner pathways might be planned and mapped across groups of institutions. Strong distinct schools reinvigorated by new organizational forms, less bureaucratic, more diverse.

Abolishing the walls of schools any student can reach the any teachers course when needed.

Wide diversity of student body; greater inter-generational mixing and joint youth-adult activities. The diversity of learners and their intelligence profiles.

ICT can increase authenticity and facilitates the use of technology-supported inquiry approaches and problem-based models for increasing learning-to-learn skills.

ICT provides innovative ways (for example, mobile tools) of integrating just-in-time support and interaction in different learning contexts.

Rather than supporting full time online/ distance education in K-8 Blended learning can be much more useful.

Much learning would take place on an individualized basis, or through networks of learners, parents and professionals.

ICT is much more extensively exploited for learning and

networking, with flourishing software market.

Strengthening lifelong learning, Distance Education, Online Education, e-learning, interdisciplinary education, Creating a web portal for students that want to take some credits online.

Increase the demand for homeschooling, network learning and make system as open as taking credits from different institutions

It demands central intervention to set minimum standards, with intervention in inverse proportion to success. And, it requires funding to be delegated to the frontline as soon as capacity exists there, giving full flexibility to meet personal need.

Personalization would mean supplier institutions defining and categorizing new options.

But there is an alternative path; one which integrates the invention and production of personalized output, so that the user (learner) is directly involved in both the design and the creation of the learning experience and outcome.

Personalization creates new opportunities to examine the boundaries of shared knowledge and social norms and their role in shaping the broader public realm.

The diversity of organizations involved in providing learning opportunities, their location and form. For this reason Accreditation and Quality assurance will be more important.

Flexible patterns of provision will be demanded by the new combinations of modular courses, apprenticeship learning and intensive, specialist learning. Multi-modal learning is also essential, with speech, reading, listening, looking and experiencing as important as electronic two or three-dimensional electronic availability.

Encouraging students to take ownership of their own learning and guiding them to course outcomes in individualized ways. Letting each student create his or her own learning experience yet still meet the expectations of the class, the school, the state.

Students may select different books to read, use different media to reflect on their progress, and create a variety of artifacts that bring their learning to life with the help of ICT and go beyond the walls of school.

**The Geo-Political
Dimension**

When we consider the increased amount of open educational resources and access to internet groups of employers may become very active if these arrangements do not deliver an adequate skills base and if government unwilling to re-establish schools.

Personalization is not purely a function of choice between alternative supply channels, therefore, but of shaping and combining many different learning resources and sources of support around personal progression.

While international measurements and accountability less relevant as systems and schools break up, new forms of international accreditation might come out.

Bridging the digital divide and market regulation become major roles for the public authorities, as well as overseeing the remaining publicly provided school sector.

The emphasis on diversity, curriculum flexibility and a more prominent role for choice – reflects both reality and aspiration; the reality of a more diverse society with a growing range of learner talents, and the expectation that the pressure for responsiveness from individual learners and families will continue to grow.

4.3.3. Scenario 3

Question (3) Scenario 3 Framework is designed to elaborate on the third scenario of the study. This hypothetical case indicates: Today, if we accept the schools function of socialization is in the foreground, there are criticisms about ‘monotype human education’ for this situation. How is a school that is differentiated based on the talents and interests of the student? Let us assume that, a school structure that will be shaped based on the needs, interests, and approaches of the students, and flexible structure will be constructed. The purpose is not to reach the standardized goals but to create an environment that each student can move in his/her own abilities and own pace.

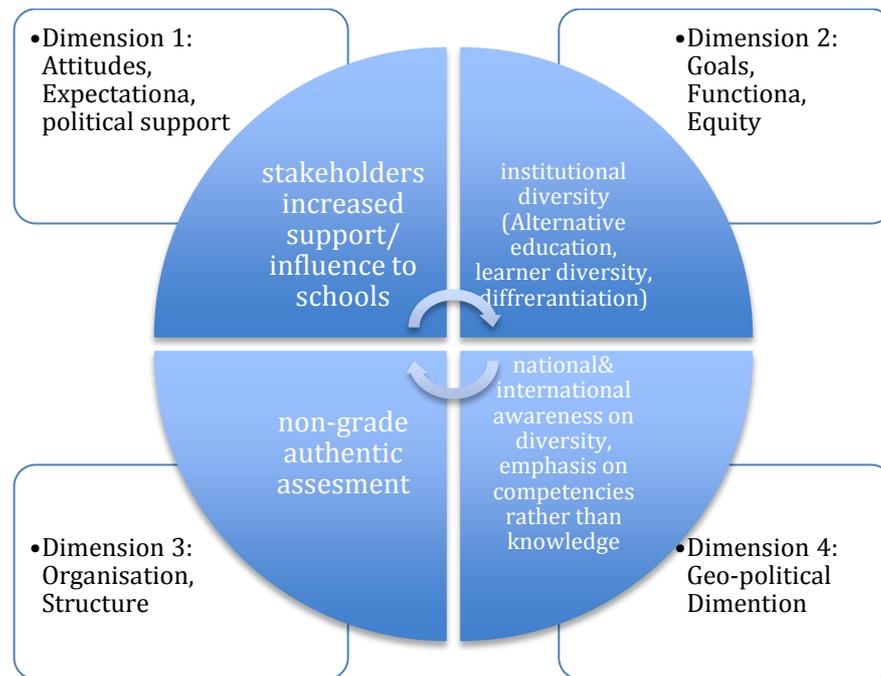


Figure 45: Dimensions of Scenario 3

4.3.3.1. Attitudes, expectations, political support

The scenario is demanding not only in terms of education, but in the broader social and economic environment that would support it. It assumes very high levels of public support and trust in institutions, and generous funding from diverse public and private sources. The scenario also assumes an affluent, high-skill society with a strong sense of equity, where schools are expected to be at the forefront of new developments and knowledge, both nationally and internationally.

All public services strive to create public goods which enable people to live their own lives better – all are reinforced by voluntary behaviors which strengthen those goods: exercise and diet for health, nurture and care for children and elders, and so on. The spaces between formal public provision and private individuals – expressed through voluntary networks, mutual partnerships, public conversations and so on – are very often the spaces through which new institutions or large scale practices can emerge. Education currently has numerous cross cutting arrangements of this kind – as do other sectors. Developing and evaluating the new forms of governance required to create value from these lateral partnerships is therefore a priority in many systems (Bentley & Miller, 2006).

4.3.3.2. Goals, functions, equity

Results of interviews showed that there is a great need for considering diverse needs of learners. Additionally participants discuss on if personalization is a reflection of social and learner diversity, then what forms of diversity should a personalized system encompass? At the moment, diversity is being introduced into the school system in several ways, but the most powerful assumes subject diversity while leaving every other aspect of schooling and its organization in a

standard form (Bentley & Miller, 2006).

Diversity can be expressed in many other ways: (1) The diversity of organizations involved in providing learning, (2) opportunities, their location and form, (3) The diversity of learners and their intelligence profiles, (4) The range of choice available to each student or family at a given time, (5) The range of practices or possible responses each provider is capable of the range of learning possibilities within a given organization.

But the extent to which diversity reflects genuine differences in learning and progression remains a matter of contention. So, for example, what changes to our qualification and award systems are needed to reflect what we are now learning about the range of human intelligence and the forms of attainment that a 21st century society will value? What kind of assessment methods and infrastructures are needed to recognize a more diverse range of learning activities? How might digitization of assessment records and procedures play a role here? One participant elaborate on this issue:

I think it may seem like a dream that there are one million curriculums for one million students but at least the numbers of the curriculums can be increased. I think that there is one curriculum for millions of people is more and more nonsense behavior than this. Students sometimes can really be aware of their needs. For example, a student saying that I will be an engineer so I need to learn maths should find a class at school that s/he can take the advanced math classes. Or else a student who wants to study international relations should find a school that s/he can learn a second or third language.

This statement encouraged us to elaborate on differentiated instruction because differentiated instruction is an educational method that offers a variety of learning options designed to tap into different readiness levels, interests, and learning profiles. In a differentiated class, the teacher uses (1) a variety of ways for students to explore curriculum content, (2) a variety of sense-making activities or processes through which students can come to understand and own information and ideas, and (3) a variety of options through which students can demonstrate or

exhibit what they have learned. One participant posed some questions on issue.

When you go out of the education system, people still ask this question: what can I do?, what abilities do I have? So, we need to do such studies for these situations based on the levels of the students in their school environment. Because leaving the responsibility to an upper institution to complete it does not solve the problems. To go a better school or to get a better education can be aimed but in addition to this, what can students do in their own class level to make their unique features out?

As a result this can be said that differentiation is a philosophy that enables educators to plan strategically in order to reach the needs of the diverse learners in classrooms today to achieve targeted standards. Differentiation is not a set of tools, but a belief system educators' embrace to meet the unique needs of every learner. Supporters of differentiation as a philosophy believe that all students have areas of strength, all students have areas that need to be strengthened, each student's brain is as unique as a fingerprint, it is never too late to learn, when beginning a new topic, students bring their prior knowledge base and experience to the learning, emotions, feelings, and attitudes affect learning and finally, students learn in different ways at different times. One participant stated that,

I agree with the idea that everyone learns in a different way but it is not like multiple intelligence. I don't agree Gardner's words and I see his book about multiple intelligences as a horoscope book. How much people who are cancer look like each other, people who have visual intelligence look like each other that much. ...Qualification and quality are different things. I can talk about the qualification of the people but quality is related to the service done by people. I had written an article called the minimum law of education. Learning is a story happening between people trying to learn and people helping them learn. Which one of them determines the quality of the education? It is seen that it does not happen by racing the schools with those tests. Actually the most important thing that good exams showed us is that participative paradigms become more successful than competitor paradigms. If more participative paradigms are implemented in the education system, the teacher care more, behave more flexible while implementing the program, they became successful. The systems who compete its student or its teacher among the schools became unsuccessful.

Results indicated that a class is not differentiated when assignments are the same for all learners and the adjustments consist of varying the level of difficulty of questions for certain students, grading some students harder than others, or letting students who finish early play games for enrichment. It is not appropriate to have more advanced learners do extra math problems, extra book reports, or after completing their regular work be given extension assignments. Asking students to do more of what they already know is hollow. Asking them to do the regular work, plus inevitably seems punitive to them. One participant stated that,

Differentiating instruction is not new, but requires a more conscious effort to analyze available data and make decisions about what is working and what needs to be adjusted. Keep what works. Discard practices that don't work. Change what needs changing. More conscious consideration and a greater repertoire of strategies will help educators do an even better job.

There are many ways to readjustment the classroom to create a better fit for more learners-including those who are advanced. In general, interest-based adjustments allow students to have a voice in deciding whether they will apply key principles being studied to math-oriented, literature-based, hobby-related, science-oriented, or history-associated areas. Adjustments based on learning profile encourage students to understand their own learning preferences. Here a participant gave an example.

For instance, some students need a longer period to reflect on ideas before beginning to apply them, while others prefer quick action. Some students need to talk with others as they learn, while others need a quiet work space. Some students learn best as they tell stories about ideas being explored, others as they create mind maps, and still others as they construct three-dimensional representations. Some students may learn best through a practical application of ideas, others through a more analytical approach. There is a need for to hug all differences. These can be ethnical, cultural, SES or learning style differences. All have same value for us. This debate will be more useful for schools rather than Winner- loser, black- white or 0-1 culture.

Participants mentioned that children's out of school learning, because it is characterized by passions and interests, also needs support at critical junctures. Most children are able to develop a new interest in an area, the challenge is then to support them when they 'get stuck'. There are children developing skills in a range of different domains who, when they wish to move to the next level of difficulty in that area, are unable to do so because they do not have access within their families or communities to the sorts of just-in-time support and scaffolding that would be needed to help them make that leap. This situation explained by a participant as,

Well, we describe a child who is good at mathematics as a 'successful student' so what do we do for a very very successful student? This question is very important because even if we limit success in academic topics, we don't have a regulation for students who have great progresses in these topics. We don't have advanced classes, regulations. Even besides this, let's think this: when the exam year comes for a students, it seems so meaningful for a student going to school not to attend the art, music classes and do tests or it is more acceptable for parents and teachers that teachers do not give these art classes in primary school and instead, study students on academic issues. That is to say, firstly we need to change our ideas, i.e. , we need to see the talents of the children are important for their development but if we just focus on academic topics, there comes out academically successful but talentless children.

Results showed that a key role for formal educational settings is to understand these needs and find ways to enable children to be put in touch with others (within or out with their communities) who are able to provide a supportive community context within which children can make these leaps to the next stage. Without this support, many of these interests and passions can fade away and become unfulfilled. This sort of just in time, networked support is a key component in achieving the goal of 'fulfilling children's potential'. This situation highlighted by a participant.

I think we should focus on skills because the issues change, the needed information change but actually skills never change. We also talk about same things, always use the same skills. If we assume that only information changes, I believe that these skills will be needed in the future, as well. The schools should not have a burden to do everything because they can't. I think the things that the schools should do needs to be narrowed down.

Results also showed us the ongoing debate on 21st century skills. One participant stated the importance of not to limit our focus by looking what is hot today. This can be said that decisions cannot be based on what is exists; rather, what exist today can only be fully understood when seen as part of a continuum of past- present and also future. When we elaborate more on skills one participant stated that,

Nowadays, everybody is mentioning about the 21st century skills. What are these skills? Critical Thinking, Creative Thinking, Collaborating, Communicating, Information Literacy, Media Literacy, Technology Literacy, Flexibility, Initiative, Social Skills, Productivity and Leadership. These skills are todays buzzy words. According to my point of view these are not new things. Except Media and Technology Literacy, these are skills that education system like to develop since Ancient Greek. In addition to that some mention about C.A.R.T. The acronym C.A.R.T. stands for
Connected, Competence, Confidence, Compassion
Acceptance, Affection, Appreciation
Reading, 'Riting, 'Rithmetic, Responsibility, Respect, and Relationships
Thinking, Technology, Teamwork. All these C.A.R.T. skills and attributes are necessary to be successful in life, not just at school. Schools are expected to build in opportunities within the curriculum for students to practice and develop these skills. If you ask me these are just old wine in a new bottle.

According to results we need to understand what children bring into the classroom in terms of their expertise, their histories, their interests – and we then need to understand in what ways schools can build on and complement these understandings – this will form the basis for a truly personalized system. A system which takes no account of this experience outside the school gates will

simply remain a top-down, curriculum-led model with slight tweaks for children's 'preferred learning styles'. One participant draw attention to the gap between regulations and implications.

.... When I look at the regulations and laws, everything seems well on theory. For example, let's think of the expression on kindergarten personal development folder about whether being wunderkind or not. The teacher will decide this but s/he does not have enough assessment tools to evaluate this. In addition to assessment tools, the teacher has to be raised awareness on this issue.

As we mentioned before there are different kinds of diversity according to education and the diversity of organizations involved in providing learning is one of them in this concept we can discuss some results from interviews. According to the participants alternative schools in Turkey will come up in the future.

...when the child comes the front door of the school, human right should continue, shouldn't be left outside because being human does not end so the same rights should be continued inside school. If we give some skills in the limits of human rights, there shouldn't be a limitation for models but as I said before, it should be based on human rights and on condition that the desired skill will be gained. If what the most important in education is only to gain committees, to gain the second important think, various applications will be allowed in education.

Alternative schools have been established since about the 1970s to meet the needs of children and adolescents who cannot learn effectively in a traditional school environment (i.e., conventional public or parochial schools) due to learning disabilities, certain medical conditions, psychological and behavioral issues, or advanced skills. In general, alternative schools have more comprehensive educational and developmental objectives than conventional schools. They often have curriculum elements that focus on improving student self-esteem, fostering growth of individuality, and enhancing social skills. Alternative schools are more flexible in their organization and administration, which allows for more variety in

educational programs. Alternative school structure and curriculum varies depending on the educational goals and desired student population. Founders of the first alternative education school in Turkey mentioned that

We use the acquisitions of Ministry of Education and add more acquisitions to these. We use different programs prepared by classroom teachers for each student. Every evening, after school all teachers gather, evaluate the day and what the students have done and then plan the next day. We try to relate the lessons with each other because ... it is important to examine a topic deeply and see in terms of different disciplines.

When we consider the scenarios of OECD, School as a social core scenario is evaluated as most desirable. We asked participants how they evaluate this issue because this is also related with the development of alternative education in Turkey but participants mentioned that

I am sure that OECD was biased when it asked this question because this institution is like the symbol of capitalism and I think about what kind of human model, school model needs to be adopted in order to keep the future capitalism alive. When we look at the scenarios, you still cannot see a democratic school model or liberator system. But still there are only discussions about how the same system will continue or the schools will change in respect to the experiences. Their perspective is just the relation of educated-workforce market and education-capitalism relation.

Last but not least participants stated that there is a need for diverse education institutions to meet the demand of diverse learners. To achieve this aim we also need some cultural and social dynamics to support this idea.

As we talked before, this school was founded on the approach of radical constructivism and it can be consisted of schools like Summerhill or Sudbury. .. but if you want to adjust it for whole country, the group should be very conscious, they should know what they really want and they should have expectations for the education but I think the society is still not ready for this. When we look at the social structure of this country, people still need compulsory education on our school. But there may be a group/ part who needs that kind of education. That's why I think that their

needs should be ignored and the necessary regulations should be done to exist. We need different educational approaches and alternatives. In any case we don't need to stick into an approach and to make all schools in one type. We need to work on a new school system commending the existence of new schools instead of compelling people for a standardized school type for everyone.

4.3.3.3. Organizations and Structures

Educational concerns today can best be summed up by the key words standards, curriculum reform, accountability and testing. The logic is that if the bar is raised, then students will perform better. Standardized textbooks, curriculum and learning frameworks, and better teaching and learning will ensue. If schools are held accountable, educators will produce results. If students are tested to see what they know and are able to do, both teachers and students will be motivated to avoid the consequences that come with low scores. While this approach to raising student achievement has its merits and its proponents, educators who focus solely on factors that are external to students are likely to achieve only limited success. Children and youth cannot be standardized. Young people's sense of agency and of self heavily influences their self-worth and their educational performance, all of which is also socially conditioned. If young people are to succeed as thinkers, as learners, and as humans who make valuable contributions to society, more must be known about them than their scores on standardized measures of achievement.

By considering that everyone has different needs, it is a true approach to .. Equality does not mean to do the same thing for everyone, it needs to mean giving equal answers for the needs of everyone. There needs to be exams but this way that exams are done gives harm to our education system. In here, there needs to be a differentiation, different education methods should be prepared for the students with different needs but it does not mean that conducting an exam in a school and putting the students into different groups based on their test results. What important is

the way that you conduct this. The schools in this shape of them don't meet our needs, we need more creative solutions. There can't be observation without paradigm and we can't produce new ideas in the system. We can provide students with studying on different topics. The important thing is to know the students, i.e., this doesn't mean that a student who is interested in sports can't do anything else. When you discriminate the children like the one who can do sports, who are good at physics, you prohibit them to interact each other by not allowing them to stay together.

In addition to these results also Scenario interviewees 1 and 4 mentioned that the most neglected group of students in K-8 is gifted learners. The school bureaucracy claiming that it is a social disadvantage to the students to skip grades for the sake of learner diversity. On the contrary, research shows that there is no significant effect on the social adjustment on students' moving ahead as many as two grades. With this information there can be some arrangements can consider for this scenario for advance learners like: acceleration, skipping grades and starting high school or university earlier.

4.3.3.4. The Geo-political Dimension

The standards and benchmarking movements of the 1990s reflected a determination to overcome the legacy of low expectations and class-based inequality in education, with a special emphasis on achieving the basics in order to equip most children with the competencies and knowledge they needed to access the full school curriculum. Despite the emphasis on consistency and informed prescription, however, these policies always co-existed with movement towards a more diverse schooling system. The emphasis on the reality of a more diverse society with a growing range of learner talents, and the expectation that the pressure for responsiveness from individual learners and families will continue to grow. The attempt to combine this responsiveness with shared public settings

which maintain norms of fairness, contribution and reciprocity is important for the future of all public services (Bentley & Miller, 2006).

4.3.3.5. Summary of Scenario 3

Table 14: Summary of Scenario 3

Attitudes, Expectations, Political Support	<p>Break the habit of being a passive receiver in schools and take the responsibility of knowing one’s own self and set targets to reflect their learning.</p> <p>Empowerment of private institutions and need to create unique schools.</p> <p>Basic philosophy is every learner is unique and have some different needs. Respect the diversity of learners and needs of local community.</p> <p>Schools exist as institutions but provide wide variety of courses to meet the demand of learners.</p>
Goals And Functions	<p>Unique schools can be in different forms such as concept schools, local school and alternative schools</p> <p>Teacher in differentiated instruction is important. Expectations from teacher will change. Teachers need to be more active in society and be careful in identifying learners. Increased the authenticity of learning environments.</p> <p>Extensive guidance and counseling arrangements. A major investment made in equality of high quality opportunities – overt failure considerably reduced by high expectations, the targeting of poor communities, and eradication of low quality programs.</p>

We need to embrace individual empowerment within as well as between schools. This leads straight to the promise of personalized learning. It means building the organization of schooling around the needs, interests and aptitudes of individual pupils; it means shaping teaching around the way different youngsters learn; it means taking the care to nurture the unique talents of every pupil.

**Organizations
And Structures**

The use of information technology can contribute to a personalization of teaching methods. By developing programs that are designed to differentiate between their users, products can fit individual requirements far better than any book and relieve the teacher of much of the routine work, so freeing up time to spend with the individual student.

Strong relationships between institutions and all stakeholders.

Increased the value formative assessment. Learner records and self-assessment might become a more formative and explicit part of educational planning.

Learning how to learn might become an explicit objective of public education, integrated into other aspects of the curriculum.

But in order to sustain system-wide improvement, societies are increasingly demanding strategies characterized by diversity, flexibility and choice. connect the possibility of truly personalized pedagogy with the promise of more flexible, responsive, and transparent systems of organization.

Crucial junctions, or choice points in an educational career might be supported by a range of information, guidance and collaboration going far beyond the current institutional frameworks.

Sharp divisions between primary and secondary levels are softened; possible re-emergence of all-age schools. Wide variety in age, grading and ability

mixes, with more all-age and school/tertiary mixes.

Acceleration will be supported for advance learners.

Intense attention to new knowledge about the processes of teaching and learning, and the production, mediation and use of knowledge in general. ICT is strongly developed, both as a tool for learning and analysis and for communication.

The Geo-Political Dimension

Strong cultural and social support to establish alternative education institutions.

International and/or national organizations can still be important for setting some standard according to competencies.

New accreditation and evaluation procedures needed instead of standardized tests in international and national level.

4.4.4. Scenario 4

Question (4) Scenario 4 Framework states: Considering today's schools, they provide a service called compulsory education and students take this. What kind of school model would you suggest that schools and students do not have obligations; students decide their own education rights and schools let students decide on their own? I would suggest an organization that centers the differences among learners and do not specify some standards that each students have to reach, and the students take the responsibility of their own learning (autonomous learners). An organization like this will be constituted with high parents involvement, the support and trust of the society. It will be more than a typical school than a central institution that research skills are foregrounded.

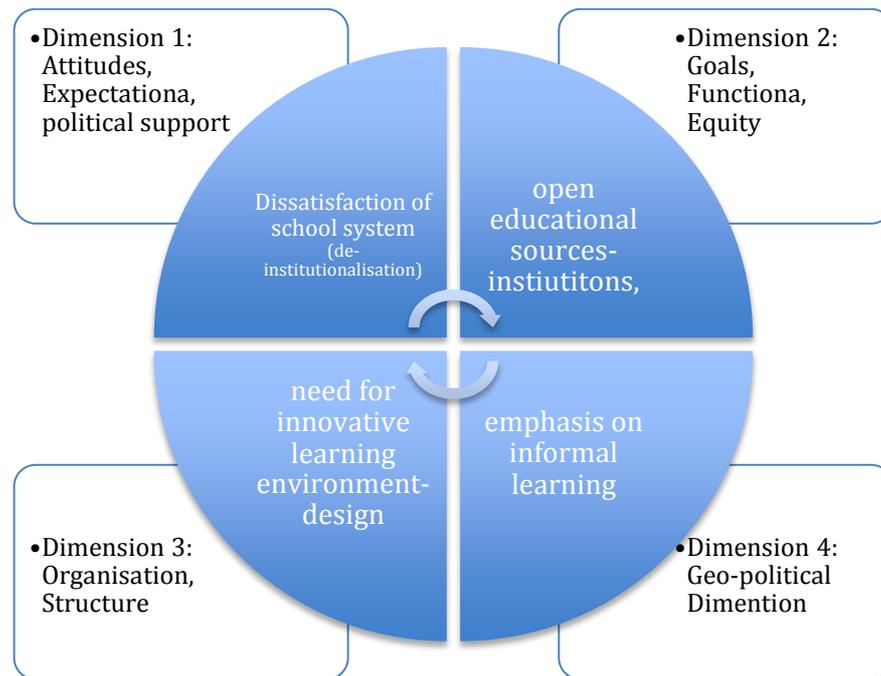


Figure 46: Dimensions of Scenario 4

4.4.4.1. Attitudes, expectations, political support

Whether schools are criticized for being too reflective of unequal social and economic structures, or insufficiently reflective of diverse cultures, or out of tune with economic life, in this scenario these very different sources of criticisms take firm root. Dissatisfaction with available provision leads to a quickening abandonment of school institutions through diverse alternatives in a political environment supportive of the need for change. This is further stimulated by the extensive possibilities opened up by the Internet and continually developing forms of powerful and inexpensive ICT. The result is the radical de-institutionalization, even dismantling, of school systems. Moreover there is another highly important point in this scenario. Higher levels of civic and social engagement needed. This scenario offers a great openness in system so, supporting, collaborating and

contributing society behaviors are crucial to survive.

4.4.4.2. Goals, functions, equity

Open education is a philosophy which values the natural development and experience of the child as the primary determinants for the appropriate curriculum and methods. During the 1960s the world witnessed a remarkable amount of social change and the emergence of new philosophies in various aspects of society. Groups seeking reform challenged many institutional practices. Criticism from these groups often reflected their lack of trust in decision-making structures. Educators were prompted to examine issues of control within their traditional philosophy, notions of curricula, and protocols of teaching and learning. Educators began a search for an institutional model of child-centered pedagogy.

In this scenario we find out a hypothetical learning organization and we called it learning centers. These are institutions that provide both informal and formal learning experiences to learners. Participants stated that learning experiences cannot be limited with lectures, workshops or online courses. There must be a combination among all learning facilities. It sounds confusing in first look but there are some implementations around the world like that. First of all we can mention about children's museums and/ or science museums. These institutions that provide exhibits and workshops to stimulate informal learning experiences for children. In contrast with traditional museums that typically have a hands-off policy regarding exhibits, these museums feature interactive exhibits that are designed to be manipulated by children. The theory behind such exhibits is that activity can be as educational as instruction. In this scenario we elaborate on how to make this kind of sophisticated environment more involve in education. It was quite hard to push people think in this kind of extraordinary composition of learning environment but there are some main results gathered from interviews.

By itself, dividing a classroom into interest areas does not constitute open education; creating large open spaces does not constitute open education; individualizing instruction does not constitute open education. . . . For the open classroom . . . is not a model or set of techniques, it is an approach to teaching and learning. The artifacts of the open classroom—interest areas, concrete materials, wall displays—are not ends in themselves but rather means to other ends. . . . In addition, open classrooms are organized to encourage: Active learning rather than passive learning, Learning and expression in a variety of media, rather than just pencil and paper and the spoken word and Self-directed, student-initiated learning more than teacher-directed learning.

First of all learning environment and design of the institution have to be totally different from traditional schools. We can conceptualize this design as open classroom. The open-classroom movement originated in British public elementary schools after World War II. The movement, known then as informal education, spread slowly to the United States. In both Britain and the United States, open classrooms contained no whole-class lessons, no standardized tests, and no detailed curriculum. The best of the open classrooms had planned settings where children came in contact with things, books, and one another at interest centers and learned at their own pace with the help of the teacher. Teachers structured the classroom and activities for individual students and small work groups. They helped students negotiate each of the reading, math, science, art, and other interest centers on the principle that children learn best when they are interested and see the importance of what they are doing. One participant mentioned that,

The building's model may vary in any case that today's schools do not need to be done in the factory model like. But still I believe that it would be useful if there was a place that people interact with each other, the similar people went and shared knowledge, thought and talked on some issues together.

In the light of above mentioned this is not new thing but participants mentioned that this kind of learning environments in this context can better meet

the demand. Moreover, school design visionaries describe traditional schools revered by generations of graduates as obsolete and only suited to preparing students for a world that no longer exists. The new Open Concept Schools touted by Nair (2013) are based explicitly upon education design principles for tomorrow's schools. Classroom-based schools are considered a relic of the Industrial Revolution, and they are seeking to re-invent schools to promote critical thinking, collaboration, and flexibility among students. The first six of the dozen underlying principles reaffirm the return of progressive education ideas in a new guise: 1) personalized; 2) safe and secure, 3) inquiry-based, 4) student-centered, 5) collaborative, and 6) interdisciplinary. Grafted onto the list are: 7) rigorous and hands-on, 8) embodying a culture of excellence and high expectations, 9) environmentally conscious, 10) connected to the community, 11) globally networked, and 12) setting the stage for lifelong learning. Results indicated that learning model should be differentiated to let different disciplines study together. For example, it should have such a special design which has a place for students to study social sciences, human sciences, and maths differently and comfortably that students should go those areas to do the things they would like and there the experts of these topics should support them. In such an institution, there shouldn't be any principle room because it should be bare and clear. It is important to have trust relations and responsibilities.

In this scenario we did not call this organization school we just called it institution to participants leave behind all their prepositions towards school concept. In this kind of institution children can hang around freely and participate any activity. But the crucial point here is educators know that understanding and learning are different things. So there must be a kind of discussion groups, mentorship implications and feedback system is needed. These kind of institutions can replace with schools or can use as supportive organizations. One participant mentioned that,

Such as Child Museums, students will go there, talk to their consultants,

plan their day and topics. There should be places like outdoor study areas, labs. There shouldn't be any bells but there should be places that they can study individually like study rooms or saloons for group works. Also, these can support school in terms of physical environment. It should be a place that the seriousness of the issues can be understood, not just to look at, such as implementations like child universities. It is not just to wander museums, it is to try the materials, talk to them and to make it in a systematic way. I can be used for people do home schooling or the ones who don't have a chance to study on the desired topics in their schools.

In addition to that the role of a school guidance counselor will change totally. Because all we know school counselor who is to work with students and parents to help guide students' academic, behavioral and social growth. School counselors' work is differentiated by attention to developmental stages of student growth, including the needs, tasks and student interests related to those stages. Here in this scenario results indicated that role is highly important. Participants mentioned about the establishing a new organization to school counselors in this kind of education structure. One participant mentioned that

Today's counseling system will never be adequate on this issue. Here what we assume is when students came to the institution in the morning, there will be education consultants to decide how they will use their time, which materials they will use, which subjects they will study. They will follow all coordination about these issues. There will appointments to work with counselors and to specify their daily plan.

4.3.4.3. Organizations and Structures

Increased autonomy at the local level empowers stakeholders through greater decision-making authority and more flexible financing. In turn, teachers and school administrators get involved as partners in efforts to improve the quality and relevance of local education. A participant stated that "establishing local learning centers also related with the role of authority. We need to to strengthen

local administration to response local needs of learners.” This kind of flexibility let learners be mobile among educational institutions. This is a different type of the participants mentioned in Scenario2. In Scenario 2 participants mentioned about hybrid learning designs for personalization but in this scenario personalization of learning is going on among institutions. One participant mentioned that

In addition to education consultancy comes into prominence, let’s assume that there is a new Learning Center in Cankaya and there is given Advanced Physics class for one term. Let the student take one credit there; spend a day of the week there. The consultants can follow what the student has done there throughout the day and then report this to the school. Here the technology can be used. For following and reports, e-school software, it can be followed. For example, it can be created an independent lesson module and it can be delivered to school with development reports weekly or monthly.

4.3.4.4. The Geo-political Dimension

Past education strategies of the World Bank (2011) have focused very much on formal schools that are funded and/or operated by governments. The new strategy explicitly recognizes that learning opportunities go beyond those offered by the public sector, as well as beyond traditional formal programs. Critical learning activities are available outside of formal schooling, such as before the official age of school entry or after a young person has left school. When young people drop out of school early, many are unlikely ever to return, so other learning opportunities, such as work skills training, are needed to help them prepare for and find employment. Even while children and youth are still in school, they may be engaged in supplementary learning activities outside the purview of the government. Services outside of traditional formal programs—such as tutorial services, which are often provided by private tutors—are prevalent in many countries, including South Korea, Turkey, Bangladesh, and the United States

(Dang & Rogers 2008; Bray 2009, as cited in World Bank, 2011).

4.4.4.5. Summary of Scenario 4

Table 15: Summary of Scenario 4

Attitudes, Expectations, Political Support	<p>Main aim is to create a learning community with learning centers. In a local environment there can be a university, some public/private institutions and regular schools. They all have their own facilities some might have more some have less but if we want all learners to reach service in high quality we need to plan some common learning centers for the sake of equity.</p> <p>Widespread rejection of organized school systems because of their highly structured organization. Learners reject the caste system like structure and they want to create their own path.</p> <p>Learners resist to ranking style evaluation, quantitative assessments and accountability obsession.</p> <p>We need to shift our thinking from a goal that focuses on the delivery of something—a primary education—to a goal that is about empowering our young people to leverage their innate and natural curiosity to learn whatever and whenever they need to.</p> <p>Learning community means the community, local institutions and social services supporting schools to drive forward progress in the classroom.</p> <p>Strong civic engagement is crucial for this scenario. Moreover empowerment of learners is the main aim because there is a Widespread dissatisfaction with the school among local community.</p>
Goals And Functions	<p>Learner centered education, respect the students own pace and choice.</p>

The evolution of the teacher from the role of instructor when children are young to a much more complex and professional role of learning facilitator, as students get older.

A de-emphasis of courses from K to 12 and a move toward ensuring deep learning that matches developmental levels, and is naturally interdisciplinary. A much greater emphasis on experiential and situational learning, and on constructivist and inquiry-based practices.

Qualitative assessment will be more important than quantitative assessment. Rich assessment and reporting based on competencies rather than courses or disciplines, and that uses language and artifacts rather than scores to show achievement.

Post-Secondary transition based on the demonstration of competencies rather than marks in pre-requisite courses.

Keeping in mind the importance of the socialization function of schools. Provide an aspirational environment that raises a learner's experience of quality of space and social interaction.

Learning programs need to incorporate shared learning, for instance teams with social interaction, and with different physical environments for different modes of learning.

The flexible stimulating comfortable space we provide to fulfill these needs is architecture. Learners need to experience different environments during the course of their day to maintain interest and avoid staleness. Physical environment must be flexible to encourage research.

Different indicators and accreditation arrangements become basic to market operations; efficiency and quality are prominent criteria. Decline of established curriculum structures defined in terms of programs and delivery, re-defined as outcomes.

The ability to learn how to learn, and to use new technologies to enhance learning, are essential for learning centers scenario. This is more than just more intelligent technology. Learning and teaching are totally co-produced (co-designed, co-constructed and co-evaluated) by learner and educator in line with a maintained and active individual learning plan.

**Organizations
And Structures**

A much greater use of community members and organizations in the direct delivery of educational programs, and in the support of apprentice-like learning outside the school.

Students acquiring the skills to fulfill their own potential, by ensuring that they have the capability and accept the responsibility to take forward their own learning.

It needs to be based on detailed knowledge of the strengths and weaknesses of individual students. Hence it must build on assessment for learning and the use of data and dialogue to diagnose every student's learning needs.

It calls for the development of the competence and confidence of each learner and so needs teaching and learning strategies that promote this. These include strategies which actively engage all students and which accommodate different speeds and styles of learning.

Personalized learning requires new modes of assessment, such as authentic assessment, performance assessment, or (digital) portfolios.

Use of technology as a personal cognitive and social tool. For the personalization agenda to succeed, she says, models are needed for the effective use of technology to support individual and social learning. It will call for multi-disciplinary collaboration between educational designers and technology developers and the full exploitation of mobile devices and wireless networks.

The range of practices or possible responses each provider is capable of the range of learning possibilities within a given organization.

Mentorship and educational advisors become highly important.

Privatization, public/private partnerships, voucher systems, and diverse management are the norm. Individualization and home schooling flourish. Greater experimentation with organizational forms. Many existing programs disappear.

ICT is much more extensively and imaginatively exploited for learning. Networking flourishes where tangible gains perceived by all parties; otherwise competition inhibits co-operation. Copyright issues acute.

The Geo-Political Dimension

Substantially reduced role for central providers and public education authorities. They still oversee market regulation, but much less traditional steering and monitoring.

Strong pressure of local people to create a learning community can lead universities and other education institutions open their libraries or research centers to all learners.

Abolishment of ivory tower type institutions all institutions will be reachable.

If the traditional model of schooling de-structure, international providers and accreditation agencies become more powerful, but strong players, many private, operate at each level – local, national, international. Much more diverse set of stakeholders involved in educational governance. Funding arrangements, including absolute levels of resources, are critical in shaping new learning markets.

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

In this chapter, the summary of the study was presented considering the literature, methodology and empirical findings of the study. Conclusion part was organized according to the research questions in order to reveal the connection between the different findings of the study. It was followed by the recommendations for decision makers, curriculum developers and future researchers.

5.1 Conclusion

*“The future started yesterday,
and we are already late”*

John Legend

This study aimed to investigate what kind of schools are evolving in the future? In personal life all people think about future. Most of the reflections are short-term, a few hours, days or months. On the other hand companies and governments also make plans for future in the light of today's conjecture. These are plans for longer term and must be based on systematic inquiry and accurate data to make predictions valid. With this sense *Futurism* term come to surface as a set of methodologies to predict long-term situation of a system. As it was presented in literature review, there is a great endeavor to future predictions of schools in worldwide. Turkey has been subject to many reforms for the last two decades. This shows us there is a tendency to find new way for the need to move

away from the 20th century model of learning, based around the transmission of knowledge, within a classroom setting. As the world has changed learning and adaptability have come to be seen as ever more important than information alone, and this has led many people to the same conclusion: that our model of schooling is outdated, and we urgently need to recognize, develop and embrace a new model of school(s). In this sense this study aimed to create scenarios about possible futures based on actual drivers and discuss on them to make arguments. Because the job of this research is not to tell people what they ought to do but rather what they could do. Researcher tends to focus on getting to the highest probability prediction that available data and models can provide. Policy makers or researchers, who want to make predictions on future, generally steer away from considering more normative question of what is desirable? But this study there is a broader search according to a more predictive question of what might be possible? For this aim research is based on a main question. In what ways will schools evolving for the future in relation to perceptions and major global trends? and what are possible future scenarios about schools in Turkey? To investigate this question overall research conducted in three phases and under each phase a sub-question was investigated (*see Figure 1*).

In the Phase 1 there are two kinds of data gathering procedure followed. These are literature review to understand ongoing review upon schools of the future and Interviews with the people that have different implementations rather than traditional school teachers. Interim interviews were conducted in a case school and results indicated that there was a huge dissatisfaction because of standardization of education and ranking style evaluation. Future perspectives of participants indicated that schools of the future should be more learner centered and focus on ICT. Structure of case school theme also indicated that international accreditations were helpful for schools to increase the quality and follow actual developments. Overall the main consensuses in these interviews indicated that there was a keen need for learner-centered education. This result led us to go further in this issue to find out what kind of implementations can be indicators to

make schools more learner centered. For this aim Fieldtrip interviews in Alternative Schools was conducted. According to results of these interviews there were two main themes: (I) Values and (II) Strategies for Schools of the future. In the first theme participants mentioned about the values and expectations of parents in their schools and are in general. Moreover participants suggested some strategies that they follow and can be helpful to make schools of the future more learner centered. These are (1) Respect to diversity of learners, (2) Deregulation of the curriculum, (3) Strengthening community- school partnerships, and (4) Rethink of school organization. These results were enlightened the different applications and perspectives on schools of the future. These interviews were also supported by the observations in each school to feel the real atmosphere of implementations.

After the first results of the concept of schools of the future trends that shaping education were investigated by trends analysis. For this aim Desk research and Trend Interviews were used. The aim of this analysis was to explore possible effects of trends on future schools. Trends may differ both in size and direction in different countries, regions, districts or even schools. So determining the unique trends of Turkish context was crucial. Result of trends interviews indicated that globalization and technology is the most important drives for schools of the future in Turkey. Framework for scenarios were organized after trends analysis.

Finally in Phase 3: Scenario Creation was organized. This scenario creation phase includes many different steps and putting altogether the data gathered from previous phases. In this study created scenarios have same dimensions with OECD scenarios except the last dimension *teaching force*. This dimension eliminated to narrow scope of the study. Scenario Interviews was done for to take expert opinions on each scenario. As a final product, four different future school context driven from this study.

5.1.1. Perceptions on schools of the future

In the light of investigations in related with perceptions on schools of the future showed us changing from an industrial age system for education to a knowledge age system means that the today's education system must change. The industrial age model worked out what the learner can achieve by using the system. The knowledge age model starts with learner achievement, and builds a system that helps learners to achieve their potential. The education system for the knowledge age is ultimately very different from the educational system for the industrial age. Schools of the future requires a vision for how each and every learner can realize their full potential, supported by this new education system.

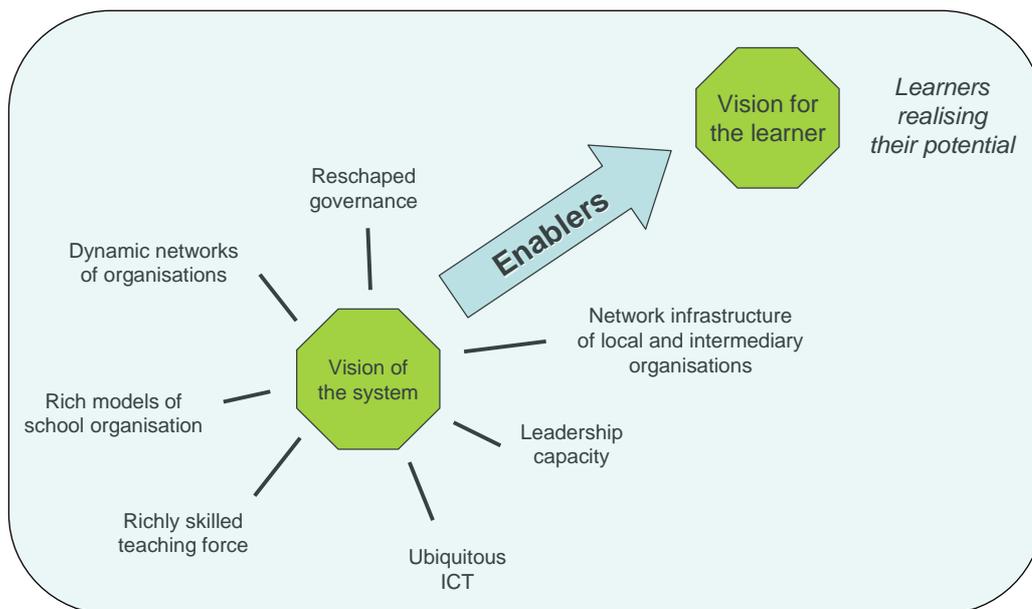


Figure 47: Aim of the School of the Future (Ellis, 2005).

Simsek (1997) argues that there is a paradigm shift in the world in terms of education. He states that "learning is no more a work of teaching" as it is

utilized in industrial factory model, but it will be a "process of discovering, searching and finding" (p.75). The old industrial paradigm would mass manufacture plants using a standardized, uniform distribution of elements. Transformation is a learning journey, not an event and we do not know where the journey will take us. To capture each opportunity that takes us in the right direction, we must have a potential future in mind, a future that is significantly different from today, which will guide and motivate us (Ellis, 2005).

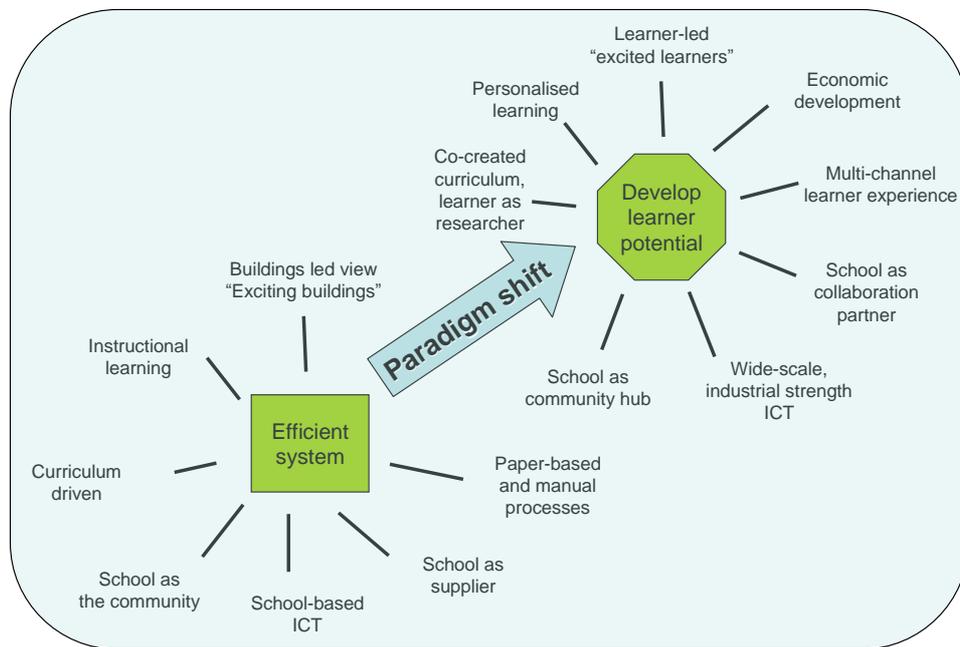


Figure 48: Paradigm Shift in Education (Ellis, 2005)

In the light of results of this study this can be said that the industrialized society may be behind us, but the Turkish educational system has not yet realized this. Industrialized society was governed by an engineering logic – standardized, measurable, and time conscious.

Table 16: *Giving shape to the future* (Ellis, 2005)

Dimension of change	Industrial-age model	Knowledge-age model, acknowledging the global economy
Frame of reference	Buildings led Instructional <i>The system is central</i>	Learner led, ICT enabled Constructivist <i>The learner is central</i>
Nature of learning	Directed and structured by the system <i>Institution based</i>	Personalized – engineered by the learner and system in partnership <i>Structured, unstructured, planned, ad hoc, physical location, virtual location. Learner as researcher, and in part taking on new responsibilities for their own learning</i>
Learner experience	Curriculum and institution driven <i>Timetable</i>	Multi-tasking, multi-device <i>Individual learning plans</i>
Scope	Renew/refurbish individual buildings <i>School as the community</i> <i>Schools operate as independent entities</i>	Economic and community regeneration <i>School as enabler for regeneration</i> <i>School is naturally part of a wider network of other schools and other learning contexts, such as 14-19 and 19-25 agendas, adult education in a context of lifelong learning for all</i>
Innovation	Innovative buildings <i>Architects as innovators</i> <i>Exciting buildings</i>	Innovative model of education <i>Learners as innovators, learners as researchers</i> <i>Excited and motivated learners</i>
IT architecture	School-based IT <i>IT services supported within school</i>	Wide scale, robust ICT <i>School has service level agreements with information systems supplier</i>
Partnerships	School as supplier <i>Provider of qualifications</i>	School as partner <i>Develops rounded citizens who contribute to the economy.</i> <i>Commercial and non-commercial partnerships</i>
Education as a business	Traditional <i>Paper based, manual intensive processes</i>	e-enabled <i>Operational processes (such as purchasing, expenses, reporting and so on) and some management processes (such as assessments and appraisals) carried out electronically</i>

This logic makes it perfectly reasonable to group students by year of birth and for

the educational system to produce standardized goods that can be classified into first-rate, second-rate, etc., based on an objective system of evaluation. One such way to measure is in units of time, and probably no modern organization bases its activities more on time than educational institutions. In the labor market, on the other hand, the continual automation of production and global outsourcing mean that an ever-increasing segment of the labor force goes from having specific work hours to having tasks to complete. In schools, industrial time-based lessons are still paramount. Table (16) is a representation of what kinds of changes are waiting our system in the future. The rationale behind these changes is also lying behind social and educational trends.

5.1.2. The Major Trends that Shaping the Future K-8 Schools

In the scope of this dissertation there are two main trends were determined: Globalization and Technology. In this part of the study themes and sub-themes of the trends would conclude in the perspective of educational policy, with the link between results and current global policies, and after those recommendations will be given.

Let's start with a famous quote of Foucault (1964) "People know what they do; frequently they know why they do what they do; but what they don't know is, what they do does." This statement is perfectly true for the policy implications of education. Policies are determined by the interplay of many factors: the conflicting interests of different groups; the power that each group possesses to advance its own interests; the formal and informal mechanisms through which conflicts are resolved and policy decisions made; and the historical legacies that affect a society's culture and ideology. An education policy or program may not directly benefit all participants and stakeholders in a system, and the local capacity to take the actions implied by policies and investments may be limited or concentrated in a few parts of government and society. Yet for reforms

to be successful and durable, broad-based ownership and support, active or tacit, are valuable, if not essential (World Bank, 2011).

There is a very famous example of how educational policies influence different parts of the system as an unintended way. In California, Governor Pete Wilson surprised both the citizens and the teachers' union with a reduced class size initiative. Consequences of the initiation had not been happened he thought through. Smaller classes would require more teachers and more classrooms. As it happened, the initiative resulted in a sharp increase in the number of inner-city children learning in makeshift trailers from hastily recruited and non-credentialed teachers. What seemed like a good idea at the time ran the danger of increasing, not decreasing, the inequality between poor inner-city schools and rich suburban schools (Ogilvy, 2006). Keeping in mind this initiation the remaining part of this chapter will focus on posing questions on current situation in Turkey.

In last decade a series of new laws were introduced to improve public administration and finance in Turkey, which also affected the public education sector. MoNE adapted its first 5-year strategic plan by 2010 but mostly educational development in Turkey suffers from the lack of a holistic, evidence-based education strategy, one which builds on national consultations and consensus. The restructuring, which was not mentioned or foreseen in any of the prior national or education plans, was designed without evidence and presented to the parliament without any public consultation. As much as this law was democratically legitimate, its introduction and adoption violated principles of good governance and created serious tensions both among the already polarized stakeholders and within the education sector (Aydagül, 2013).

When Turkey have still been struggling with really fundamental problems there is also a tendency to follow current trends. In Turkish context by 2023, the government aims to: a) achieve a society of educated individuals; b) launch the Movement of Enhancing Opportunities and Improving Technology project (FATİH), which aims to equip each classroom with an interactive white board and each student with a tablet computer; c) increase participation rates in pre-school,

basic and secondary education to 100%; d) promote the importance of vocational education; e) implement reform of the YÖK; f) increase the number of private universities; g) improve the quality of universities; h) increase the number of academics in universities; i) implement a policy of language learning; j) terminate gender and regional disparities; and k) prepare students for upper education and the future in a more flexible structure (OECD, 2013a). According to this aims we can say that there is a great emphasis on technology in Turkey.

It has not been the aim of this dissertation to produce a blue-print for the school of the future, or for policies that define the way ahead across Turkey. It is useful nevertheless to elaborate some of the questions that need to be addressed in moving into the future, drawing particularly on the different implications of the scenarios presented in at the end of the conclusion. In related to knowledge intensive economy theme of globalization the stunning rise of the middle-income countries, led by China, India, and Brazil, has intensified the desire of many nations to increase their competitiveness by building more highly skilled workforces. Technological advances are changing job profiles and skills, while offering possibilities for accelerated learning. Persistently high levels of unemployment, especially among youth, have highlighted the failure of education systems to prepare young people with the right skills for the job market and have fueled calls for greater opportunity and accountability. Expanding and improving education are essential to adapting to change and confronting these challenges. to put in a nutshell, investments in quality education lead to more rapid and sustainable economic growth and development. Educated individuals are more employable, able to earn higher wages, cope better with economic shocks, and raise healthier children. But although developing countries have made great strides over the past decade toward the Millennium Development Goals (MDG) of universal primary education and gender equity, an abundance of evidence shows that many children and youth in developing countries leave school without having learned much at all (World Bank, 2011).

In the light of abovementioned issues, there can some questions posed for

Turkish context. Are the policies of governments sufficiently aligned to provide the funding and training needed to power the knowledge-intensive economies of the future? What are the specific responsibilities of education systems in helping to achieve this goal? In addition to that as mentioned before, 21st century skills are the competencies that knowledge intensive economy needs. With this sense, should more emphasis be placed on skills such as creativity, decision-making, co-operation, and the availability to find pertinent, reliable information? Are these skills adequately developed through education and training? If yes, in which ways?

Results of this study indicates that OECD studies and World Bank Strategy focuses on learning for a simple reason: growth, development, and poverty reduction depend on the knowledge and skills that people acquire, not just the number of years that they sit in a classroom. In related the work and careers, while a diploma may open doors to employment, it is a worker's skills that determine his or her productivity and ability to adapt to new technologies and opportunities. Knowledge and skills, including those that are learned in the classroom, help improve a person's ability to have a healthy and educated family and engage in civic life. And as noted above, at the societal level, recent research shows that the level of skills in a workforce—as measured by performance on international student assessments such as PISA and TIMSS—predicts economic growth rates far better than do average schooling levels.

In related to work and careers there are some points Turkish education system needs to consider: How well does education prepare young people to cope with, even thrive in, situations of uncertainty and change? How effective are systems of professional development and retraining? People are working in various positions and different companies over the course of their career. What is the role of educational systems in providing the lifelong learning opportunities needed to support career change and re-skilling?

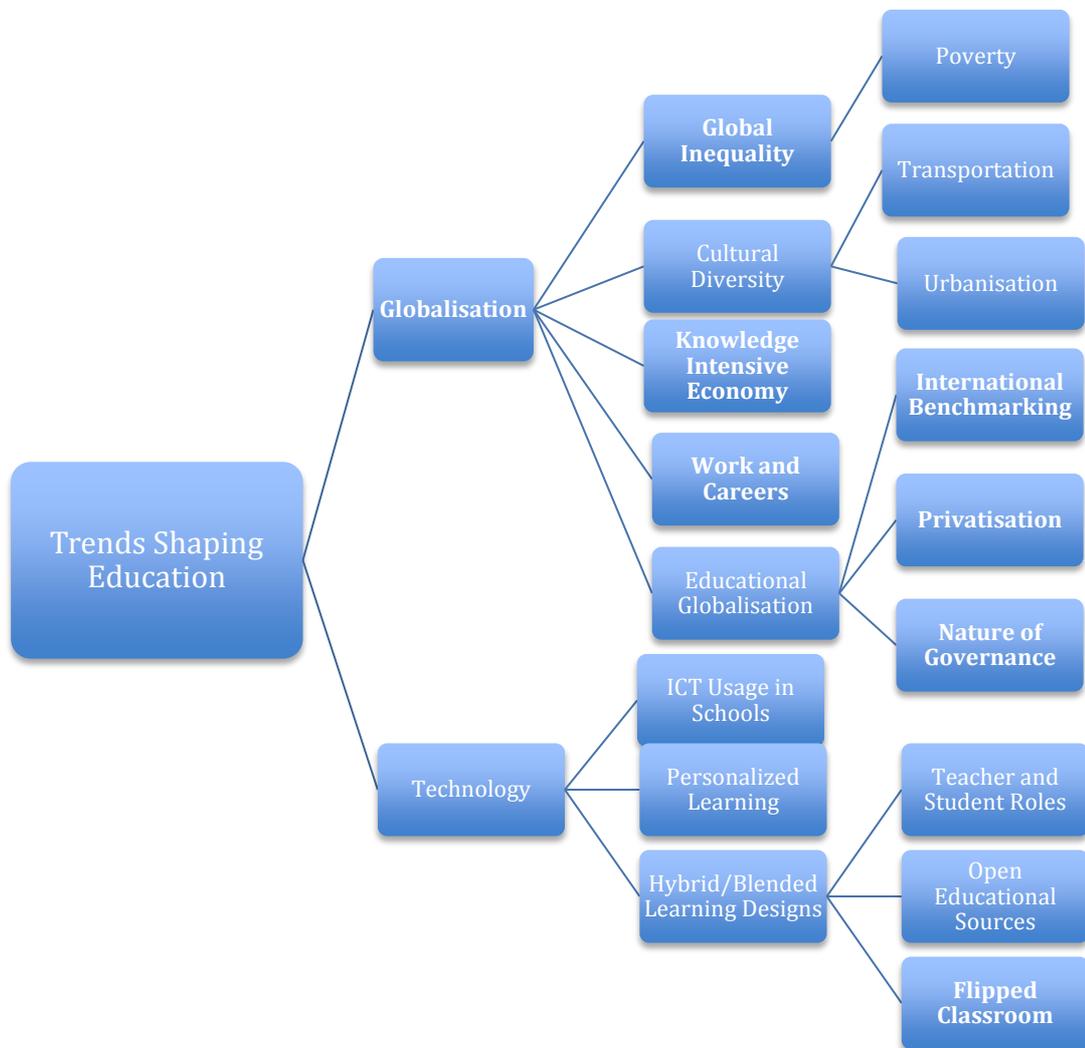


Figure 49: Overall Themes and Sub-themes of Trends Shaping Education

Education and training systems have traditionally been bastions of national decision-making but as we mentioned before, international trade and agreements like GATS are leading education be more internationally connected before. Do these systems provide students with the necessary outlook and skills, including language skills, for successful international cooperation? Furthermore, economies are increasingly intertwined and interdependent. The rise of emerging economies challenges our educators to adequately prepare graduates to be internationally competitive. Are teachers being given the tools and support they need to achieve this? How might education nurture the kind of transferable skills to cope and adapt to economic uncertainty and change?

Indeed, learning is not simply the business of education agencies; it should also involve social welfare and/or social protection and health agencies in the design and implementation of policies across sectors that ensure young children have the foundational skills to succeed in school. In addition to global inequality when we look at the social policies for last 30 years there is a shift from employment-based policies to income-based policies. This kind of social policies also supported by IMF and WB after 1990. New poverty probably will be the most important issue in the future. High quality schools can change the rate of uneducated people in regions. Results indicated that while absolute poverty is decreasing, relative poverty has increased in OECD countries, suggesting that one of the potential issues is social exclusion. How can education support individual students experiencing social exclusion to improve their social integration and educational success? This is a need to create chances to children go out of their poor neighborhood and meet with other children. With this sense another question is come out. Are poverty conditions and educational disadvantage increasingly concentrated in particular schools and neighborhoods? If so, what can be done to address this?

In relation to global inequality and poverty there are some critical points education system must keep in mind: this is well known that education can stimulate social mobility by providing opportunities, but it also plays a role in

reproducing inequalities when the already privileged have better access to education. Can education be designed in such a way that it does not reinforce inequalities? For example results point that initial education and lifelong learning play a role in lifting people out of poverty by, for example, providing them with the right skills for the labor market. What kinds of programs or incentives would strengthen this function of education? Furthermore literature states that Positive and achievable expectations for one's own educational success are a significant motivating factor. What can educators do to nurture and realize this potential? Teacher expectations of student success are strongly linked to student aspiration and achievement. How can teachers be best provided with the tools they need to maintain positive expectations for all of their students? How should educational institutions address the needs of students whose cognitive and social development have been affected by poverty? What role for non-formal provision?

The results indicated that every day our society being more and more diverse. Transportation and urbanization are two of the most effective factors in this theme. Under the cultural diversity theme of the study in Turkish context there are some questions educators supposed to find answers. As results indicated participants mentioned about the need of creating a more culturally sensitive atmosphere in Turkish education. With respect to this issue, does the changing global landscape argue for change in the curricula whether for science, language learning or other subjects such as history and geography? Can schools help their students to develop greater cultural sensitivity? Is there a role for exchange programs in assisting the development of greater cultural sensitivity? The other facet of the diversity was urbanization and as mentioned before increased urbanization creates both challenges and opportunities for local communities. Diversity among needs of local community becoming wider and school must response this diverse needs. Educator should consider which skills are needed to deal with these challenges (for example, civic responsibility, non-cognitive skills), and how can schools develop them? And how can school cope with problems of overcrowding and overstretched infrastructure in quickly growing urban areas?

What can be the role of schools to reduce this new poverty depends on urbanization in Turkey? How can educational institutions restructure to meet the demand of these people?

Under the educational globalization theme as we mentioned in results participants stated that there is a need for reform in education. We all know that reforms are easier to introduce when there is a new government; when there is a demand for broader change, as is the case during crises, and other reforms are also being made; when the costs of reform are dispersed among groups that have little political power and its benefits are concentrated on a powerful group; and when the groups that bear the costs of reform can be compensated. Here we can recommend investigating System Approach that World Bank 2020 Strategy pointed. This approach is focused on how to reform education in small steps. Here we can ask a crucial question, what issues in education ignored until today and how we can deal with that?

International Benchmarking assesses a country's institutional capacity and policies related to specific dimensions of its education system; diagnoses its strengths and weaknesses against global standards, best practices, and the performance of comparator countries; and guides reforms aimed at improving learning for all. The framework, analytical methods and measurement tools will not be applied in a one-size-fits-all manner. Rather, the approach will be applied contextually, with diagnostics and interpretations that are appropriate to each country's starting point and constraints. The conclusions are made as a result of performance on the TIMSS and the PISA, which show large gaps in performance from countries around the world. There is a need for investigate the real predictors of academic success in Turkey. So we can ask, what are the precautions to be taken increase student achievement in international exams?

With the effect of Privatization the private or non-state sector become an important provider of education. Yet, the results avowed that central education agencies in many countries do not have hard data on how many non-state or non-formal providers of education operate in their countries or how many students

they enroll, and often do not have a regulatory framework for private schools. Private education market can help policymakers assess supply shortages and financing deficits, design appropriate expansion plans, and distill lessons that might improve public sector performance and inform reforms. The important point should policy makers work on is collaborative funding options. This can be a remedy for learners to reach higher quality education. As a participant mentioned can models of public-private funding on health and pensions be adapted to cover the rising cost of education?

Results of nature of governance indicated that greater leeway should be granted to schools and local layers of government to help foster innovation, better meet students' needs and make for a closer fit between schools and their environment. But, with the complexity that accompanies greater local autonomy, and assuming the need to retain a certain minimum unity and stability, a crucial element of the system's management becomes the rapid, effective circulation of relevant information to all involved. In related to education there can some questions poses: How far should decentralization and the autonomy of schools be developed in order to foster innovation and change? What should be the role of the state and what mechanisms used to steer change? How can the objectives of a specific school be reconciled with those at the local, regional, national, and European levels, or even global-level objectives? At least in school level, should schools help build the attitudes necessary for student empowerment by giving pupils more opportunities to be heard, participate and collaborate in school decision making?

Technology is the second major theme of this study. Policy makers seeking to redesign the school experience with FATIH Project can create guidelines to reflect the new technology to pass along to school leaders and practitioners. The main goal of the project is to fill the economical and intellectual gaps between learners through technology. From the economical perspective, it can be perceived that large numbers of funds for technology is a way to catch up globalized world. On the other hand from educational perspective, it can be

interpreted that focusing only infrastructure and material is the simplest action among all goals of the innovative learning environment. There are new questions come out with the use of technology in this way: Increasing numbers of computers are present at schools and routinely used at work. Are we adequately preparing students with the techniques and skills needed to take advantages of the opportunities that ICT offer? In addition to that how can education utilize advances in technology to enrich student-learning environments? Is there a market for educational apps to improve learning in the classroom and extend it beyond? What are the benefits and costs of students learning through technology? Finally, what are the ways to improve teachers ICT skills to be better prepared for new era?

Results showed that recent technologies for educational purposes or in other words innovative learning environments call for teachers to have a solid grasp of the underlying pedagogies that support the use of technology in order to holistically transform the school experience. The OECD recently commissioned a study, *Technology-Rich Innovative Learning Environments*, which highlights the stages of integrating a new technology that lead to deep transformation of the teaching and learning experience. The report contains case studies to demonstrate that technology is a powerful way to restructure the learning environment. LUMIAR Schools in Sao Paulo, Brazil, for example, is presented as an innovative educational experience; through the use of technologies — the Mosaic learning platform, laptops, and interactive whiteboards — LUMIAR Schools fosters the individual building of competences and skills. There are no classrooms, and students work on various projects, documenting their efforts in e-Portfolios, while Tutors and Masters (guides and subject matter experts, respectively) assist them on their learning paths. These implications are also supporting the findings related both trends and perceptions of participants. There are some points educators consider. For instance, cloud computing is already used to virtually store and access large datasets and aid in organizing conferences and reviewing draft publications in the international academic community. How can concerns

regarding accidental or deliberate disclosure of protected information be best addressed (for example, disclosing the identity of anonymous reviewers, or deliberate data mining)? Other than the schooling, does the pervasiveness of the Internet mean that society is now becoming “de-schooled” decades after the original arguments were made by those opposed to the bureaucratic tendencies of education systems?

Furthermore, results indicated that Personalized Learning is one of the crucial points in this study because ICT has the potential to allow more self-paced, interactive and personalized learning. How much more should this potential be exploited, whether in schools or non-formal learning? In addition to that educator should consider: does greater school choice and more personalized learning inevitably favor those with the greater cultural resources? How can we balance equity with the legitimate rights of parents to choose what is best for their child?

Participants mentioned that the abundance of resources and relationships, with the increased use of Hybrid Learning Designs. Hybrid Learning Designs made easily accessible via the Internet is challenging us to revisit our roles as educators. Institutions must consider the unique value that schools add to a world in which information is everywhere, and generally free. In such a world, sense making and the ability to assess the credibility of information are paramount. Mentoring and preparing students for the world in which they will live and work is again at the forefront. K-8 institutions have always been seen as critical paths to educational credentialing, but challenges from competing sources are redefining what these paths can look like (Johnson et al, 2013). Results indicated future schools will use cloud based implementations. Schools turn to mobile applications for immediate access to many resources and tasks that once were performed on desktop computers, it makes sense to move data and services into the cloud. The challenges of privacy and control continue to affect adoption and deployment, but work continues on resolving the issues raised by increasingly networked information (Johnson et al, 2011). In the light of above mentioned educators in Turkey ought to point out some questions: Especially on-line education exposing

some quality assurance problems. With the rise of online courses, what kind of quality control should be imposed on e-learning? In addition to that there are some risks come out with the increase of cyber activity. Young people are increasingly engaged online. How can concerned adults, such as teachers and parents, best educate them to be aware of Internet risks and how to deal with them as they arise? Is better filtering and protection the answer? Moreover, what responsibilities do educators have in monitoring student's time online during school hours, and how can different parental standards of safety be accommodated? Is there a need for system-wide policies to establish consistent standards in online security for all schools?

5.1.3. Possible Scenarios for the Future K-8 Schools

For the scenario creation of the study there are four scenarios developed. Researcher like to remind that these four scenarios can come out one by one or altogether. This means one scenario can be present itself but there is another scenario can find a place in system. In addition to that there is a very controversial issue is present. The term self-fulfilling prophecy was coined in 1948 by Robert Merton (Merton 1968). The self-fulfilling prophecy once made, actions based on the false definition set in motion behavior that result in outcomes that 'prove' the initial prediction true. The self-fulfilling prophecy is, in the beginning, a false definition of the situation evoking a new behavior which makes the original false conception come 'true'. The specious validity of the self-fulfilling prophecy perpetuates a reign of error. For the prophet will cite the actual course of events as proof that he was right from the very beginning. Consider only one example. If people in positions of authority or power define African-Americans as less able scholastically than other groups and therefore less likely to succeed in school, they then allocate fewer resources to their education on the basis of the "false" definition. Allocated fewer resources, inferior teachers and school

environments, the African American students do more poorly in school. The original prophecy seems to be confirmed. In our study these scenarios can be a self-fulfilled prophecy or vice versa. This means maybe policy implementers can feel uncomfortable with a one or more scenarios and can create support policies to opposite ideas.

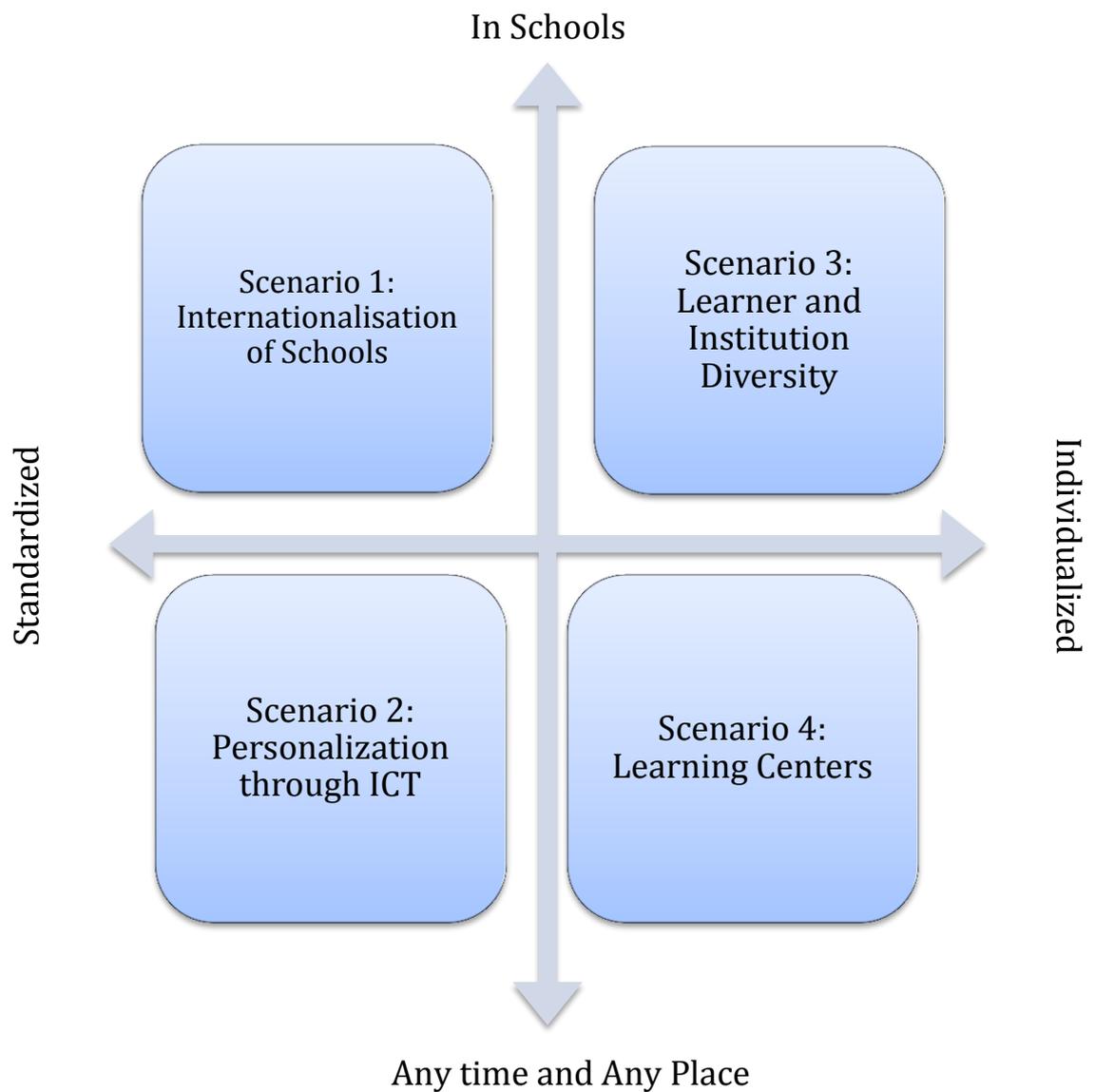


Figure 50: Possible Scenarios for the Future

When scenario 1 is considered, this shows us schools will be places that internationally accredited and raise youth for the global knowledge intensive economy. In addition to that considering geopolitical dimension of the scenario-GATS, Bologna Declaration and some other international agreements lead schools to focus on International trade, mobility and flexibility in work life. These schools can be similar to International Baccalaureate schools.

Scenario 2 is representing the need for meeting the diverse learners. Personalization of education with the help of ICT (open sources, Blended learning) is the hearth of this scenario. As mentioned in the axes of this scenario, it is representing the standardization and any time and place features in the same time. For this scenario to come up widespread of ICT usage in worldwide should increase. In addition to that decentralization of education and network like structure of education gain importance. Distance education, e-learning and homeschooling will be one of the main parts of the education system. Scenario 2 of the OECD study also points out ICT is prominent in their scenario, and ICT use is evaluated regularly. OECD Scenario 2 highlights that new forms of evaluation and competence assessment flourish, reflecting the aptitudes and achievements of all learners. Teaching professionals are motivated by highly favorable working conditions, such as small learning groups and a strong emphasis on team working and educational research and Development. In addition to that, OECD Scenario 5 Learning in Networks also pointed out the replacement of school systems with universal networking instead. The abandonment of the schools might be driven by public dissatisfaction with available schools and the widespread access to powerful new learning media. As government involvement decreases, parents and students assume more responsibility for education. Learner networks are an important part of the network society, based on interaction and cooperation. With this environment, the major media and ICT companies become active in mediating the learning networks (OECD, 2006). In the Scenario 2 and OECD Scenario 5 there is another crucial point that need to consider. While these scenarios promote diversity and democracy, it also runs risks of exclusion,

especially for groups which have traditionally relied on the school as a vehicle for social inclusion (OECD, 2006).

Scenario 3 is representing the voice of the diversity in society. As mentioned before this diversity considered as diversity among learners and/ or diversity among institutions. For the first dimension (Attitudes, expectations and political support) there is a need for increased support of stakeholders come up. By this way learner diversity can gain importance and educators consider using differentiated instruction in regular schools. In addition to that rates of alternative schools can increase. This situation also influences the evaluation system deeply and non-grade authentic assessment procedures gain importance. This scenario has some similarities between OECD Scenario 2. In OECD scenario 2, there is also dissatisfaction with the performance of relatively uniform structures of public school systems. OECD assumes that governments encourage diversification and the emergence of new learning providers through funding structures, incentives and de-regulation.

Scenario 4 (de-institutionalization). is the strongest evidence of the dissatisfaction of current school system There is a point that researcher want readers to pay attention this scenario is not another replica of *de-schooling society*. In OECD Scenario 3 the goal is to increase community development and social integration. This scenario is closer to idea of establishing a new institution that satisfies the lack points of traditional schools. OECD Scenario 3 mentioned that schools could function as social centers in new community arrangements with learning at the core. These schools would have *low walls* and *open doors* and a very strong emphasis on collective and community tasks (OECD, 2006). Here the ICT usage is the seminal part of in the Scenario 4 and OECD Scenario 3. ICTs are part of the structure and are used extensively for peer-to-peer and cross-border networking, as well as for interactions between students and teachers, and between schools and parents/communities. A high level of participation by all in society, of all ages, blurs the boundaries between schooling and other ways of learning (OECD, 2006). This scenario is to increase ways for informal learning in

high quality way. First of all in over the entire scenario creation there is an obvious tendency from formal education to informal education. With the help of the technology, the informal learning opportunities gain importance. Today if we consider the World Bank 2020 Strategy, we can also see the policy change in global arena. In addition to that movement of open educational sources and institutions is another support for this scenario.

In previous reports of World Bank (before World Bank 2020 Strategy) they focus more on immediate interventions but for 2020 strategy they mostly focus on improve educational systems and provide valid evidences for change. The new strategy for 2020 is informed by both the World Bank Group education strategy launched in 2000 (just before the adoption of the MDGs). The 2000 strategy stated that the Bank's mission in education is "to ensure everyone completes a basic education of adequate quality, acquires foundation skills—literacy, numeracy, reasoning, and social skills, such as teamwork—and has further opportunities to learn advanced skills throughout life in a range of post-basic education settings." It focused on four priority areas that were to be addressed according to country conditions (World Bank, 2011).

The strategy update of 2005 affirmed the Bank's commitment to education for all and emphasized the desired outcome of educational progress: a knowledge-driven economy and a cohesive society. It also replaced the emphasis on basic education with a focus on developing holistic education systems, thus increasing attention to post-basic education: "WB's strategic thrust is to help countries integrate education into national economic strategies and develop holistic education systems responsive to national socioeconomic needs." The centerpiece of the new education strategy is learning for all. This goal is to be attained not only through more investments in inputs (e.g., more trained teachers or university professors, a better curriculum, more learning materials), but also through support for institutional changes in the education system. The new strategy emphasizes the importance of aligning governance arrangements, financing, incentives, accountability mechanisms, and management tools with

national educational goals. It explicitly recognizes that the term “educational institutions” applies not only to formal public schools and universities, but also to learning opportunities offered by organizations outside of the government sector and formal education institutions (World Bank, 2011). Under these conditions, researcher assumed that Scenario 2 and 4 can easily find political support in this environment.

	2000	2005 Update	For 2020
Objective	<i>Quality education for all</i>	<i>Education for all and education for the knowledge economy</i>	<i>Learning for all</i>
Priorities or themes	<ul style="list-style-type: none"> Basic education (poorest, girls) Early interventions (early childhood development, school health) Innovative delivery Systemic reform 	<ul style="list-style-type: none"> Integrate education into a countrywide perspective Adopt a sectorwide, or holistic, approach Become more results oriented 	<ul style="list-style-type: none"> At the country level, strengthen education systems to achieve results At the global level, develop a high-quality knowledge base on education systems

Figure 51: Focus of World Bank Group Education Strategies

5.2 Recommendations

This last part was constructed to inform the different groups of addressees of the study, considering this gap and results of the study. Recommendation for policy makers, curriculum developers and further research will discuss as the final part of the study.

5.2.1 Recommendations for Policy Makers

Policy makers, officials, advisors and policy analysts may use this study as a source of social trends to build on in thinking through the long-term possibilities for education and what the trends might mean for school policies. This is a very important need in Turkey because educational quality varies school-to-school and within educational levels.

In the scope of this study there can many recommendations can suggest but in conclusion chapter many things discussed deeply. For this reason in this part another important point of the education system will be briefly mentioned. As mentioned before in Literature section, in education systems there must always be a definition of quality assurance or achievement levels. Although degree completion, enrollment levels, and retention rates are often seen as reliable indicators of quality, they are not an exact measure of educational quality (Ewell 1997).

Quality assurance is the heart of every system and as mentioned before education cannot be free from evaluation. This recommendation is especially critical for Scenario 2,3 and 4. because if system evokes in that way in the future, quality assurance will be highly important. It is easier to make system accountable when you consider standardized testing. For this reason if scenario 1 occurs in the future, there would be less problems in terms of quality assurance rather than scenario 2,3, and 4.

There is another reason why quality assurance is focused. Consider the education as a train that was followed by tracks laid down in the curriculum and was driven by the desires for a high quality system. This train traveled from the same tracks for many years and when a change is needed, we are only focus on one wagon. As mentioned in scenario interviews by Scenario interviewee 9, change occurs only in curriculum, material and/ or method. Assume these components as wagons of the train and try to imagine refurbish one. All educators know that there is only inconsistency occurs in this situation. So, in the future

scenarios it is crucial to look those in a holistic way and approve them as an organic structure maybe conceptualize it like organ transplantation. There can always be tissue rejection and put in to account that protects us not to demand for the impossible.

Robinson (2009) has a great metaphor on for how to consider quality assurance in education. He compares the process of quality assurance in education with catering. In the restaurant business, there are two distinct models of quality assurance. The first is the fast-food model. In this model, the quality of the food is guaranteed, because it's standardized. The fast-food chains specify exactly what should be on the menu in all of their outlets. They specify exactly what should be done in the burger or nuggets, the oil in which they should be fried, the exact bun in which they should be served, how the fries should be made, what should be in the drinks, and exactly how they should be served. They specify how the room should be decorated and what the staff should wear. The other model of quality assurance in catering is the Michelin guide. In this model, the guides establish specific criteria for excellence, but they do not say how the particular restaurants should meet these criteria. They don't say what should be on the menu, what the staff should wear, or how the rooms should be decorated. All of that is at the discretion of the individual restaurant to meet them in whatever way they see best. They are then judged not to some impersonal standard, but by the assessment of experts who know what they are looking for and what a great restaurant is actually like. They are all unique and different from each other. One of the essential problems for education is that most countries subject their schools to the fast-food model of quality assurance when they should be adopting the Michelin model instead.

The future of education is not in standardizing but in customizing; not in promoting groupthink and "de-individuation" but in cultivating the real depth and dynamism of human abilities of every sort. Just as standardization ensures that a real cook will never be employed by a fast-food chain, education reforms that mandate highly prescribed, content-bloated curriculums and standardized tests are

working hard to ensure that real teachers need not work in schools again. As mentioned in results of privatization in results chapter, there is a strong need for unique schools in Turkey. Ministry of national education is trying to keep quality by standardization. But this metaphor also gave an idea to how to keep quality in unique way.

5.2.2 Recommendation for Curriculum Developers

In this study there is a huge amount of information and one can write millions of recommendation for curriculum developers. To limit the scope just three topics will be discussed under this heading. First one of the hottest topic of education will be mentioned. This topic is the 21st century skills. When someone began to talk in the issue of future of education people automatically ask for 21st century skills. As mentioned in results these skills are not newly invented. They are ultimate. For this reason even which scenario reveal in the future curriculum developers should focus on these skills. Here the problem is deciding how to embed these skills in to curriculum. For many years when a need occurs for a skill schools open up a new course, but may be this time schools should focus on skills rather than information transmission.

Second under the globalization theme there was an obvious risks for the society: Cultural diversity. As our participants mentioned schools of the future must be more sensitive for cultural diversity. This argument opens a great debate that ignored for many years. Can really schools help their students to develop greater cultural sensitivity? There are two facets in this question first schools can consider cultural sensitivity with change in the curricula whether for science, language learning or other subjects such as history and geography to response change the global landscape. On the other hand, in the light of effectiveness and equity objectives, curriculum developers should consider how to manage the growing diversity of students resulting from both mass education and new forms

of social division? How to achieve unity without uniformity? How to diversify learning tracks and methods without falling prey to segregation? How far and for how long in the school cycles should there be the same educational track for all?

Last but not least for the technology dimension curriculum developers be ready for flip all they learn until today. This can sound so assertive but gave this argument to capture attention to a great change. Curriculum developers have to be ready to design curriculum with technologists. They can need to design web-based, blended courses or fiction learning environments (gamification of education). At least FATIH Project is considered one can foresee the closeness of this situation. A technology oriented instructional design methodology will be an integral part of education in the near future.

5.2.3 Recommendation for Further Research

For further research scenario analysis is strongly recommended. All this emphasizes the value of the scenario method and indicates one avenue to explore when gauging the likelihood of a range of different scenarios for education systems. It is based on a simple assumption – that developments deemed likely and/or desirable have more chance of happening than those that most people think are unlikely to occur or are undesirable. This assumption remains to be verified, but it is not unrealistic.

The goal of scenario analysis in a policy context may be positioned between the poles of exploration and pre-policy research. Exploration is traditionally the most common objective of scenario work. Scenarios may be used to explore a wide range of areas, from certain macro trends to particular subjects of interest in an area of policy. Exploration primarily uses scenarios as a vehicle of learning rather than a tool for decision-making. Pre-policy research also involves exploration but is at the same time directed at serving more specific policy-oriented goals. This range of purpose means that the study design must

incorporate different methods for bringing the scenarios into a strategic and decision-oriented framework (Iversen, 2006). Additionally pre-policy scenarios are used to examine paths to futures that vary according to their desirability (Van Notten, 2006).

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APPENDICES

Appendix A: *OECD Scenario Dimensions*

OECD Scenario 1 Dimensions

Attitudes, Expectations, Political Support	<p>Education, especially schooling, is politicized, and to the fore in party politics.</p> <p>Despite continued grumbling about the state of schools from parents, employers and the media, most are basically opposed to radical change.</p> <p>More positive attitudes held towards local than overall provision.</p> <p>Possibilities for “playing the system” are important in ensuring the continued support of schools by educated parents resulting in pressure for the greater exercise of choice.</p>
Goals And Functions	<p>Much attention focuses on the curriculum, with many countries operating a common curriculum and assessment system – aimed at enforcing standards or creating greater formal equality or both.</p> <p>Formal certificates seen as main passports to economic/social life – but while increasingly necessary are increasingly insufficient.</p> <p>Larger relative numbers and greater diversity of “older young” in initial education as the norm continues of staying on longer and longer.</p> <p>Continuing inequalities alongside policy endeavours to combat failure.</p>
Organizations	<p>Strong bureaucratic character of schools and systems continues.</p>

And Structures

Dominance of the classroom/individual teacher model, but some room for innovation and of developing schools as learning organizations.

Increased ICT use in schools but not radical change to organizational structures of teaching and learning.

Growing but patchy connections between educational and “non-educational” community uses of school facilities.

**The Geo-Political
Dimension**

The nation (or state/province in federal systems) still the main locus of political authority but squeezed by: decentralization to schools and communities; new corporate and media interests in the learning market and globalizing pressures, including growing use of international surveys of educational performance.

The Teaching Force

Highly distinct teacher corps, sometimes with civil service status. Strong unions and associations in many countries and centralized industrial relations.

Professional status and rewards problematic in most countries. “Craft” models of professionalism remain strong.

Growing attention to professional development (INSET), and efforts to retain teachers. This is partly in the face of major teacher supply problems, exacerbated by ageing.

OECD Scenario 2 Dimensions

Attitudes, Expectations, Political Support	<p>Significant reduced belief in the value of public education overall. Possible funding “revolts” by taxpayers.</p> <p>Divergent and conflicting positions expressed. Teachers’ associations unable to resist moves to greater privatization.</p> <p>A political culture develops that supports extended competition across many areas of social, employment, and cultural policy.</p> <p>The stability of new market solutions highly dependent on how well they meet perceived shortcomings.</p>
Goals And Functions	<p>Different indicators and accreditation arrangements become basic to market operations; “efficiency” and “quality” are prominent criteria. Decline of established curriculum structures defined in terms of programs and delivery, re-defined as outcomes.</p> <p>Alongside strong focus on knowledge and skills, values and attitudes – such as attitudes to risk, co-operation and hard work – may be prominent and hence recognized as outcomes. Market-oriented schooling may also, in response to demand, allow greater reflection of cultural/religious beliefs.</p> <p>Stronger emphasis on information, guidance and marketing – some publicly organized, much private. Substantial tolerance of wide inequalities and exclusion. Possible tendency for greater homogeneity of learner groups. Lifelong learning becomes the norm for many. Clear boundaries for “staying on” in school lose meaning in the face of diversified educational careers.</p>
Organizations And Structures	<p>Privatization, public/private partnerships, voucher systems, and diverse management are the norm. Individualization and home schooling flourish. Greater experimentation with organizational forms. Many existing programs disappear.</p>

Possible big differences emerge between the primary and secondary sectors, with market models more strongly developed at secondary level. Markets develop in childcare and culture, not just employment-related learning.

ICT is much more extensively and imaginatively exploited for learning.

Networking flourishes where tangible gains perceived by all parties; otherwise competition inhibits co-operation. Copyright issues acute.

The Geo-Political Dimension

Substantially reduced role for central providers and public education authorities. They still oversee market regulation, but much less traditional “steering” and “monitoring”.

International providers and accreditation agencies become more powerful, but strong players, many private, operate at each level – local, national, international. Much more diverse set of stake-holders involved in educational governance.

Funding arrangements, including absolute levels of resources, are critical in shaping new learning markets.

The Teaching Force

Less distinct teaching force, a wide range of new professionals with diverse profiles – public, private; full-time, part-time. Potential quality issues.

The new “teaching professionals” in ready supply in areas of residential desirability and/or learning market opportunity. Otherwise, problems of shortages and speed of market adjustment. Flourishing training and accreditation for professionals to operate in the learning market.

Transition problems until new markets become embedded.

OECD Scenario 3 Dimensions

Attitudes, Expectations, Political Support	<p>Wide measure of party political and public agreement on goals and the value of public education; funding increases.</p> <p>High-trust politics with extensive co-operation between authorities, teachers, employers, and other community groups in relation to schools. The role of schools as centers of community activity/identify is accorded widespread recognition.</p> <p>Educated classes and media supportive of schools, giving them greater freedom to develop their own pathways as centers of social solidarity/ capital in different partnerships.</p>
Goals And Functions	<p>The role of schools continues in transmitting, legitimizing and accrediting knowledge, but with greater recognition and focus on a range of other social and cultural outcomes, including citizenship.</p> <p>More diverse forms of competence recognition developed in enterprises and the labor market liberate schools from excessive pressures of credentialism. The lifelong learning function is more explicit.</p> <p>Possible reversal of trend to longer school careers, but less clear-cut boundaries between school participation and non-participation. Inequalities reduced but diversity widens and social cohesion strengthened.</p>
Organizations And Structures	<p>Strong distinct schools reinvigorated by new organizational forms, less bureaucratic, more diverse.</p> <p>General erosion of “high school walls”. Wide diversity of student body; greater inter-generational mixing and joint youth-adult activities. Sharp divisions between primary and secondary levels are softened; possible re-emergence of all-age</p>

	<p>schools.</p> <p>ICT is strongly developed, with particular emphasis on communication (by students, teachers, parents, community, other stakeholders). Networking flourishes.</p>
<p>The Geo-Political Dimension</p>	<p>The local dimension of schooling substantially boosted, supported by strong national frameworks, particularly in support of communities with weak social infrastructure.</p> <p>New forms of governance are developed giving various groups, enterprises, etc., a bigger role. International awareness and exchange is strong, but supra-national control is not, encouraging local diversity.</p>
<p>The Teaching Force</p>	<p>The local dimension of schooling substantially boosted, supported by strong national frameworks, particularly in support of communities with weak social infrastructure.</p> <p>New forms of governance are developed giving various groups, enterprises, etc., a bigger role. International awareness and exchange is strong, but supra-national control is not, encouraging local diversity.</p>

Attitudes, Expectations, Political Support	<p>This differs from the previous scenario by its stronger “knowledge” focus that is well understood by the public and avoids the risk of ever-widening social remits making impossible demands on schools.</p> <p>It assumes strong schools, enjoying very high levels of public support and generous funding from diverse sources, as well as a large degree of latitude to develop programs and methods.</p> <p>The teacher corps remains a more distinct profession, albeit with mobility and using various sources of expertise, than in the “school as social centre” scenario.</p>
Goals And Functions	<p>Highly demanding curricula are the norm for all students. More specialisms catered for (arts, technology, languages, etc.) but a demanding mix of learning expected of all students, including specialists.</p> <p>School diplomas continue to enjoy major currency, albeit alongside other forms of competence recognition. Innovative developments of assessment, certification and skills recognition for broad sets of talents.</p> <p>The lifelong learning function is made more explicit through clarification and implementation of the foundation role for lifelong learning. Extensive guidance and counselling arrangements.</p> <p>A major investment made in equality of high quality opportunities – overt failure considerably reduced by high expectations, the targeting of poor communities, and eradication of low quality programmes.</p>
Organizations And Structures	<p>Strong schools as learning organizations with distinct profiles. Flatter, team-oriented organizations with greater attention to management skills for all personnel.</p>

Team approaches are the norm. Intense attention to new knowledge about the processes of teaching and learning, and the production, mediation and use of knowledge in general. Major new investments in R&D.

Wide variety in age, grading and ability mixes, with more all-age and school/tertiary mixes. ICT is strongly developed, both as a tool for learning and analysis and for communication.

Links between schools, tertiary education, and “knowledge industries” are commonplace – for INSET, research and consultancy.

**The Geo-Political
Dimension**

Strong national framework and support, with particular focus on communities with weakest social resources.

International networking of students and teachers. Countries moving furthest towards this scenario attract considerable international attention as “world leaders”.

Substantial involvement of multi-national as well as national companies in schools (but close attention given to widening gaps).

The Teaching Force

A high status teaching corps, enjoying good rewards and conditions. Somewhat fewer in lifetime careers, with greater mobility in and out of teaching and other professions.

More varied contractual arrangements but good rewards for all.

Major increase in staffing levels, allowing greater innovation in teaching and learning, professional development, and research.

Networking the norm among teachers, and between them and other sources of expertise.

OECD Scenario 5 Dimensions

Attitudes, Expectations, Political Support	<p>Widespread dissatisfaction with the institution called “school” – its bureaucratic nature and perceived inability to deliver learning tailored to complex, diverse societies.</p> <p>Flight out of schools by the educated classes as well as other community, interest and religious groups, supported by political parties, media, multimedia companies in the learning market.</p> <p>New forms of private, voluntaristic and community funding arrangements emerge in tune with general developments towards the “network society”.</p>
Goals And Functions	<p>The decline of established curriculum structures with the dismantling of the school system. Key role for different values and attitudes. New attention comes to be given to “childcare” arrangements with the demise of schools. Some of these are based on sports and other cultural community activities.</p> <p>Hard to predict how far various measures of competence become the driving “currency”. To the extent that they do, strong emphasis on information, guidance and marketing through ICT, and on new forms of accreditation of competence.</p> <p>Possibly wide inequalities open up between those participating in the network society and those who do not.</p>
Organizations And Structures	<p>Much learning would take place on an individualized basis, or through networks of learners, parents and professionals. ICT is much more extensively exploited for learning and networking, with flourishing software market.</p> <p>If some schools do survive, hard to predict whether these would be mainly at the primary level (focused</p>

on basic knowledge and socialization) or at secondary level (focused on advanced knowledge and labor market entry). Some public schools remain for those otherwise excluded by the “digital divide” or community-based networks – either very well-resourced institutions or else “sink” schools.

**The Geo-Political
Dimension**

Community players and aggressive media companies are among those helping to “disestablish” schools in national systems. Local and international dimensions strengthened at expense of the national. While international measurements and accountability less relevant as systems and schools break up, new forms of international accreditation might emerge for elites.

Bridging the “digital divide” and market regulation become major roles for the public authorities, as well as overseeing the remaining publicly provided school sector. Groups of employers may become very active if these arrangements do not deliver an adequate skills base and if government unwilling to re-establish schools.

The Teaching Force

Demarcations between teacher and student, parent and teacher, education and community, blur and break down. Networks bring different clusters together according to perceived needs.

New learning professionals emerge, employed especially by the major players in the network market. These operate via surgeries, various forms of “helpline” and home visits.

Attitudes, Expectations, Political Support	<p>Widespread public and media dissatisfaction with the state of education in the face of the teacher recruitment crisis and growing sense of declining standards, especially in worst-affected areas.</p> <p>Relative political impotence to address the loss from the teaching force given the scale and long-term nature of the problem and/or deep-seated cultural barriers to changes needed to set in train another of the scenarios.</p> <p>The education political climate becomes either increasingly conflictual or leads to consensual emergency strategies.</p>
Goals And Functions	<p>Established curriculum structures under intense pressure, especially in shortage subjects. Where main response is one of retrenchment, examinations and accountability mechanisms are strengthened in a bid to halt sliding standards.</p> <p>Where the teacher shortage instead stimulates widespread change, major revisions of curricula undertaken – much more outcome- and demand oriented and less supply- and program-centered. New forms of parallel evaluation and assessment methods developed.</p> <p>Inequalities widen sharply between residential areas, social and cultural groups, etc. Affluent parents in worst-affected areas desert public education in favor of private alternatives.</p>
Organizations And Structures	<p>Very diverse organizational responses to lack of teachers. In some situations, there is a return to highly traditional methods, partly through public pressure in response to declining standards, partly because of large classes.</p> <p>In other situations, innovative organizational responses using different forms of expertise</p>

(including from tertiary education, enterprises, communities), and diverse mixes of lectures, student groupings, home learning, ICT, etc.

Intensive use of ICT as an alternative to teachers; ICT companies very actively involved. Wide disparities again possible between highly innovative and traditional uses.

**The Geo-Political
Dimension**

The position of the national authorities is strengthened in the face of crisis, as they acquire extended powers. It weakens, however, the longer the crises are unresolved.

Communities with no serious teacher shortages seek to protect themselves and extend their autonomy from national authorities.

Corporate and media interests in the learning market intensify.

International solidarity improves between some countries where initiatives develop to “lend” and “borrow” trained teachers, including between North and South.

Solidarity declines and protectionist responses increase the more generalized the shortages and where several countries are competing for limited pools of qualified staff.

The Teaching Force

Teacher rewards increase as part of measures to tackle shortages. Conditions of teaching worsen as numbers fall, with problems acute in worst affected areas, exacerbating the sense of crisis.

Strenuous efforts made to bring trained – especially retired – teachers back into schools. Often only disappointing results, particularly where school politics and very conflictual and in areas of severe shortage.

In some countries, the distinctiveness of the teacher corps and role of unions/associations increase in proportion to their relative scarcity. In others,

established conventions, contractual arrangements, and career structures are rapidly eroded.

As schools shorten teaching time, many posts created for semi-professional “child-minding”. The market in home tuition flourishes, possibly with government subsidies to lower-income households.

Appendix B: Interim Interview Schedule/ Interview Schedule 1

Gorusme Sorulari

1. On Sorular

1. Okulunuzun ogrenci profilini tanimlar misiniz?
ALT: okulunuzun hedef kitlesi ne tip ogrencilerdir?
2. Okulunuzun Veli profilini tanimlar misiniz?
ALT: okulunuzun hedef kitlesi ne tip velilerdir?

2. Degerlendirmeler ve Ongoruler

1. Bugun anasinifina baslayacak bir ogrenci yaklasik olarak 2030 yili nda universiteden mezun olacak. Sizce mezun oldugunda ne gibi bir donanima ihtiyaci olacak?
PROMPT: Ne tur bir bilgi yada bilgiler,
Ne tur bir beceri yada beceriler,
Nasil bir tutum ve degere sahip olmasi gerekir?
2. Simdiki egitim sistemi ogrencinin gelecekte ihtiyaci olacak bilgiyi ne kadar kazandiriyor?
3. Simdiki egitim sistemi ogrencinin gelecekte ihtiyaci olacak beceriyi ne kadar kazandiriyor?
4. Simdiki egitim sistemi ogrencinin gelecekte ihtiyaci olacak tutum ve degerleri ne kadar kazandiriyor?
5. Su anda ulkemizde merkezden yonetlenen milli bir egitim sistemimiz var bunun gelecekte nasil bir hal alacagini dusunuyorsunuz?
ALT: Sizce gelecekte egitim sistemimizin nasil bir yapisi olacak.
PROMPT: Milli degerlerin on planda oldugu egitim devam eder mi?
Globallesme onem kazani mi?
Globallesmenin onem kazanmasi durumunda yerel degerler nasil etkilenir?
6. Gelecek icin, sizin idealiniz olan okulu dusunseniz ve onu bir seye (canli veya cansiz bir varliga bir nesneye yada herhangi bir seye) benzetmenizi istesem neye benzetirsiniz? nedenlerini aciklar misiniz?
ALT Q: Hayalinizdeki okula bir ad vermenizi istesem ne ad verirdiniz? nedenlerini aciklar misiniz?

3. Egitim Programi

1. Okulunuzun egitime bakis acisini anlatabilir misiniz?
2. Okulunuzda uygulanan IB (International Baccalarute) programini anlatabilir misiniz?
3. Bu program ogrencinin 2030 da hayata atilmasi icin ihtiyaci olacak

donanimlari iceriyor mu?

4. IB ye uye olmanin sizin icin avantajlari ve dezavantajlari nedir?
5. Okulunuzda uygulana EAQUALS programini anlatabilir misiniz?
6. Bu program ogrencinin 2030 da hayata atilmasi icin ihtiyaci olacak

donanimlari iceriyor mu?

PROMPT: Yabancı dil eğitiminin gelecekteki yeri

PROMPT: Yabancı dil eğitiminin gelecekteki önemi

7. EQUALS a uye olmanin sizin icin avantajlari ve dezavantajlari nedir?

3.1. Ders icerikleri

1. IB' nin eğitim programi ders iceriklerinizi nasil etkiledi?

PROMPT: Diğer okullarda olmayan sadece IB' ye uye olan okullarda olan ders veya ders icerikleri nedir?

2. EQUALS a uye olmak ders iceriklerinizi nasil etkiledi?

PROMPT: Diğer okullarda olmayan sadece EAQUALS a uye olan okullarda olan ders veya ders icerikleri nedir?

3.2. Öğretim

1. IB programi okulunuzdaki öğretmenlerin öğretim yöntemlerini nasil etkiledi?

2. EQUALS okulunuzdaki öğretmenlerin öğretim yöntemlerini nasil etkiledi?

3.3. Öğretim Materyali

1. Eğitime yardımcı materyal açısından okulunuzu nasil değerlendiriyorsunuz?

PROMPT: Sizin okulunuzda olan fakat diğer okullarda olmayan olanaklar ya da özellikler nelerdir?

2. IB ye uye olmak okulunuzda kullanılan eğitim materyallerini etkiledi mi?

3. Eğitim teknolojisi deyince aklınıza ilk ne geliyor?

ALT Q: Eğitim teknolojisi size neyi ifade ediyor?

4. Teknolojiyi kullanmak derslerde ne gibi olumlu ve olumsuz etkiler yapıyor?

5. Gelecekte ne tip yeni eğitim araçlarının gelişeceğini düşünüyorsunuz?

4. Eğitim Ortami (Okul Düzeni, Sınıf Düzeni)

1. IB ye uye olmak okulunuzu fiziksel ortam olarak nasil etkiledi?

PROMPT: Okul fiziksel yapisi olarak nasil etkiledi?

Sınıf fiziksel yapisi olarak nasil etkiledi?

2. EQUALS' a uye olmak okulunuzu fiziksel ortam olarak nasil

etkiledi?

PROMPT: Okul fiziksel yapisi olarak nasil etkiledi

Sinif fiziksel yapisi olarak nasil etkiledi?

3. Hayalinizdeki okulu dizaynini anlatirmisiniz?
4. Hayalinizdeki sinifi anlatirmisiniz?

Appendix C: Fieldtrip Interview Schedule/ Interview Schedule 2

Reasearch Questions

How do practitioners perceive "learner centered education"?

What are the major similarities and differences between approaches?

What are predictions of practitioners towards education in the future?

ALT Q: How do practitioners perceive schools of the future?

Preliminary Questions

Could you describe your student profile?

ALT Q: What is the target group of your school?

Perceptions towards Schools

Could you briefly describe your approach ? (Sudbury, Free school, Waldorf, SEM, Gifted day school)

ALT Q: How do you perceive your approach?

PROMPT: What are the strengths and weaknesses of the approach?

What is the first thing (Image) comes into your mind about this school? Why?

ALT Q: Which object, plant, animal or living organism is school like? Why?

In general what is your opinion about learner centered education?

What what is your opinion about the standardization in school system?

PROMPT: How standardization effects "learner centered education" ?

What do you think about the future direction of education?

What would be the first thing (Image) comes into your mind if you describe your ideal school for future? Why?

ALT Q: Which object, plant, animal or living organism is the school you imagine look like? Why?

A student who start at kindergarten this year will be graduated from university in 2030. What kind of competencies will s/he need in that time?

PROMT: What kind of knowledge/ skill / attitude will they need?

School Management

What is the decision making process in your school?

PROMT: Are stakeholders (parents, students, teachers etc.) contributing the decision making process in your school?

How do you describe your school culture?

PROMT: what are the main components of your school culture? (perfectionism, solidarity...)

Curriculum

In general how do you develop your curricula?

PROMPT: How do you manage differentiation process?

How the approach of school is effecting your course syllabi?

PROMPT: What are the courses or course syllabi that unique to your approach?

What kind of evaluation procedures do you follow to evaluate classroom performance of students?

Instruction

How could you describe the teachers profile in your school?

How your approach is effecting your instruction techniques?

PROMPT: What methods do you use to consider individual differences?

Instructional Materials

How do you evaluate your school in terms of instructional materials?

PROMPT: Is there any facilities or features that unique to your school?

Is the approach of your school effecting instructional materials?

What is the first thing comes into your mind about educational technology?

ALT Q: What is the meaning of educational technology up to you?

In terms of educational technology what are the most frequently used materials?

PROMPT: Smart Board, Computer, Tablet PC, Projector etc.

School Design

What do you think about the design of your school?

PROMPT: Is the design support instruction/ approach?

PROMPT: What is the shortcoming of school design? (Classroom, Public areas, conference room, laboratories etc.)

PROMPT: What do you recommend to improve physical environment of schools?

Could you please describe your ideal of school?

Could you please describe your ideal of classroom?

Appendix D: Summary of Field Notes of Fieldtrip Observations

Hudson Valley Sudbury School: The Hudson Valley Sudbury School (HVSS) in Woodstock, NY is an alternative, private school for students ages 5 to 18. HVSS is based on the educational philosophy first developed by the Sudbury Valley School in Framingham, MA in 1968. Students who attend HVSS create their own curriculum; they exercise their rights and responsibilities as members of an active democracy and, most importantly they develop the skills and qualities necessary to become a successful adult. A Sudbury school respects their students. This respect is demonstrated by the trust placed in the students to determine their own curriculum and to be part of the democratic governance of the school. Students also passionately dive into interests such as painting, physics, skateboarding, sewing, cooking, music, carpentry and Chinese — the list is endless. A Sudbury school is alive with activity. There is a wealth of exposure to various avenues of interest. Students see each other pursuing their passions and are inspired by them.

Democracy Prep Charter School: Democracy Prep Charter School first opened its doors in August 2006. Each year since, it has received an “A” grade from the New York City Department of Education. By 2009, DPCS became the highest performing school in Central Harlem and was ranked the number one public middle school in New York City. Democracy Prep Public Schools, a network of open-enrollment, high performing, "no excuses" public charter schools operating in Harlem, New York and Camden, New Jersey. The mission of Democracy Prep is to educate responsible citizen-scholars for success in the college of their choice and a life of active citizenship. A simple philosophy guides Democracy Prep staff, students, and alumni alike: Work Hard. Go to College. Change the World!

St. Johns Episcopal Preschool: Reggio Emilia has its origins in Italy, in the province of Reggio Emilia. Its beginnings came in the wake of Italy's post WWII freedom from fascist rule. The father of the approach was a middle school teacher by the name of Loris Malaguzzi, who collaborated with families to create a new system of education for young children – one that was child-centered, recognizing and honoring the individuality of each child. The first Reggio Emilia schools were truly a community effort, being built literally from the ground up by the families who would be part of their communities. Thanks to Malaguzzi's work, by 1963, the city government had begun to assume responsibility for the management of the people's schools and the first municipal preschool was opened.

The Preschool welcomed its first class of four children in March 1997. In the ensuing years, they have grown to an enrollment of 45 children, ranging in age from 2-1/2 to 5 years. They offer three morning classes with mixed-age extended day options in the morning Early Birds program and the afternoon Kids' Workshop. The preschool was founded by parishioners as a part of the church's bicentennial celebration. The curriculum is inspired by the philosophy of teaching young children that originates in Reggio Emilia, Italy. They believe children possess a natural capacity for joy, a sense of wonder about the world and the motivation to make sense of their world. Every young child is intelligent and capable of constructing knowledge through interactions with parents, peers, and educators. At St. John's, children's investigations take on multiple dimensions as they explore the world using their unique personalities and abilities. They also believe all children have the right to caring relationships and rich learning environments provided by adults who listen to their ideas, value their thinking, and thereby broaden their understanding of their world.

Waldorf School of Princeton: Waldorf schools, also called Steiner Schools, are based on the educational philosophy of Rudolf Steiner, an Austrian philosopher who is the founder of Anthroposophy. The first Waldorf school was

started in Germany in 1919 following the publishing of Steiner’s first book on education in 1907, *The Education of the Child*. Interestingly, this first school was opened to serve the employees of the Waldorf-Astoria Cigarette company on a request from its owner. That first school quickly grew to include a large number of students with no connection to the factory, however, and before long the model had inspired the opening of similar schools around Europe. By 1938 the movement had made its way to the United States as well. The Waldorf School of Princeton offers a uniquely well-rounded education for children from early childhood through grade eight. With a highly structured curriculum, the school carefully integrates arts, sciences, literature, and physical movement in a framework that endows children with discipline and balance, teaches them that they can be creators, and inspires them to be morally centered, socially aware individuals. A central part of our success grows from our conviction that introducing a subject when a child is developmentally ready is the best way to spark curiosity, deepen interest, and discover the profound joys of learning. In their classrooms, this “true education” counts more than any test score. The school campus covers 22 acres of rolling green landscape, with a wooded valley and affluent brook—plenty of room to run and explore. Teachers and students nurture a respect for and love of nature, incorporating environmentally sound practices into daily activity, such as working together in the school's biodynamic garden, with a careful witnessing of seasonal changes. They encourage all of families at our school to follow an age-appropriate approach to use of media, in a belief that guarding a young child's acute senses and impressionable mind is essential to the healthy growth of each individual student.

Green Meadow Waldorf School: Green Meadow Waldorf School is an independent day school located 20 miles from New York City in Chestnut Ridge, Rockland County, NY. Founded in 1950, they are one of the oldest and largest Waldorf schools in the US. From the young child’s imaginative experiences of discovery and play in our Early Childhood program to the intellectual challenges

presented in the High School, learning at Green Meadow is pursued with genuine desire and curiosity. Through a curriculum of academically challenging lessons, infused by the arts and informed by a unique understanding of a child's developmental needs -- the hallmark of Waldorf education -- Green Meadow Waldorf School educates its students to become well-rounded individuals capable of bringing purpose and direction to their lives, ready to think on their own, stand for themselves and act with empathy toward others. Green Meadow Waldorf School strives to create a social, cultural, and learning environment that recognizes the child's spiritual freedom and growth. Inspired by Rudolf Steiner's insights into human development, Green Meadow nurtures the physical, emotional, and intellectual capacities of the growing child through a developmentally appropriate curriculum. Green Meadow Waldorf School engenders in its young people the academic, social, artistic, and practical abilities that will enable them to become self-reliant and generous individuals capable of meeting whatever challenges they face in the future. Green Meadow Waldorf School offers an Early Childhood program (Parent & Child for those from birth to three, as well as Nursery and Kindergarten) and Grades One through Twelve. 11-acre campus allows their students access to the natural world. School consist of 350 children, who come from 13 counties and nearly 90 towns in New York, New Jersey, and Connecticut.

Renzulli Academy: The Dr. Joseph S. Renzulli Gifted and Talented Academy is a school designed for students in grades 4-10 who have a passion for learning and are capable of gifted performance in school. Students are academically talented, task-committed, and curious. They are original thinkers who are open to discovering their gifts in a creative educational setting. Renzulli Academy students are characterized by intrinsic motivation, creativity and high aptitude. The Renzulli Academy offers high quality and distinctive programs specific to those needed to accommodate Hartford's identified gifted and talented youth. The Academy utilizes the Schoolwide Enrichment Model (SEM), SEM is

not intended to replace or minimize existing services to high achieving students. Rather, its purpose is to integrate these services into “a-rising-tide-lifts-all-ships” approach to school improvement. The SEM provides enriched learning experiences and higher standards for all children through three goals: developing talents in all children, providing a broad range of advanced level enrichment experiences for all students, and providing follow-up advanced learning for children based on interests. The SEM emphasizes engagement and the use of enjoyable and challenging learning experiences constructed around students' interests, learning styles, and product styles. The key challenge is for educators to create spaces where learning can take place and is ‘encouraged’ by the physical environment which learners are exposed to. Learning will occur within both formal and informal contexts and hence the totality of any new facility needs to be considered. Flexibility of room configuration needs to be encouraged so that classroom layouts can be varied, both in terms of fixtures and fittings as well as being able to alter room layout via moveable partitioning. Carpeted areas upon which children sit for reading are commonplace and specialist facilities and resources for different activities/subjects are held within the room and are accessed appropriately.

Nueva School: The Nueva School, located in the San Francisco Bay Area and founded in 1967, is a nationally recognized independent school serving gifted and talented students from pre-kindergarten through high school. The progressive, learner-centered school emphasizes integrated studies, creative arts, and social-emotional learning. It provides a constructivist program, project-based learning, and special-area teachers in visual art, reading, math, science, music, physical education, technology, and social and emotional learning. Teachers work in teams to develop thematic curricula for classes. The Nueva School uses a dynamic educational model to enable gifted children to learn how to make choices that will benefit the world.

Commonwealth School: Commonwealth was founded in 1957 by Charles E. Merrill, Jr., who served as headmaster until 1981 and remains on the Board of Trustees. He chose to locate the School in Boston's Back Bay because, as he put it, “one goal of Commonwealth is to restore good secondary schooling to the city,” recognizing that Boston would be a “stimulating and realistic” setting for education. The mission of Commonwealth School is to educate young people from diverse backgrounds to become knowledgeable, thoughtful, and creative adults, capable of careful analysis, fruitful cooperation, responsible leadership, and deep commitment.

Appendix E: Trends Analysis Interviews/ Interview Schedule 3

Demographic Trends	
	Ageing Society Fewer Children Migration Mobility Sustainability And Environment Growing Energy Consumption Population Growth Urbanization Inequality And Poverty Smaller Families Single Parent Families Less Social Interaction Evolving Values
Economic Trends	
	The Global Economy Knowledge-Intensive Economy Lives Less Dominated By Work Less Securely Attached To The Labour Market Women At Work The Learning Society Educational Attainment Rising Investments In Education Global Educational Patterns (Inequalities And Student Flows)
The Digital (And Learning) Society	
	The Changing World Of Work And Jobs The Digital Revolution The Expanding World Wide Web
The Political And Social Factors	
	Changing Forms Of Political Participation The Role Of The Welfare State – Smaller Government

Question (1) Which trends are relevant for Turkish context?

Question (2) Are there other trends to take into account?

Question (3) Which trends have critically importance for Turkish Education?

Question (4) What will the impact of these crucial trends to Turkish education in the future?

Question (5) How can we deal with these trends in the future? Can we influence or react them?

Appendix F: Scenario Creation Interview Schedule/ Interview Schedule 4

Question (1) Scenario 1 Framework: When examined the factors affecting the education, the most important of the current problems of Turkish education system is that youth of our country has quite low results in international exams. What do we need to carry our country into higher levels in international evaluations and to meet the needs of international education (exams, accreditation, education program, etc.)?

PROMPT: What do you think when you dream about a school that takes international educational standards as main goal?

PROMPT: Could you explain the main features of this school?

PROMPT: What kind of political orientation can make this school possible?

PROMPT: How can be the structure of this school?

PROMPT: Under which geo-political circumstances this school can survive?

Question (2) Scenario 2 Framework: This scenario does not include how technology will be transferred into the educational environment; it includes all kinds of regulations related to a personified more transparent and reachable educational resources. In this scenario, beyond the use of technology actively, the aim is to discuss how to use education within the frame of particular standards as a tool that meets the learner's needs and interests. When it is mentioned as personalized education, it does not mean "individualized education". It is aimed for individuals to reach particular standards with their own interests and abilities.

PROMPT: What do you think when you dream about an educational structure that focus on same common standards but support education 7/24/365?

PROMPT: Could you explain the main features of this structure?

PROMPT: What kind of political orientation can make this structure

possible?

PROMPT: Under which geo-political circumstances this structure can survive?

Question (3) Scenario 3 Framework: Today, if we accept the schools function of socialization is in the foreground, there are criticisms about ‘monotype human education’ for this situation. How is a school that is differentiated based on the talents and interests of the student? Let us assume that, a school structure that will be shaped based on the needs, interests, and approaches of the students, and flexible structure will be constructed. The purpose is not to reach the standardized goals but to create an environment that each student can move in his/her own abilities and own pace.

PROMPT: What do you think when you dream about a school that takes international educational standards as main goal?

PROMPT: Could you explain the main features of this school?

PROMPT: What kind of political orientation can make this school possible?

PROMPT: How can be the structure of this school?

PROMPT: Under which geo-political circumstances this school can survive?

Question (4) Scenario 4 Framework: Considering today’s schools, they provide a service called compulsory education and students take this. What kind of school model would you suggest that schools and students do not have obligations; students decide their own education rights and schools let students decide on their own? I would suggest an organization that centers the differences among learners and do not specify some standards that each students have to reach, and the students take the responsibility of their own learning (autonomous learners). An organization like this will be constituted with high parents

involvement, the support and trust of the society. It will be more than a typical school than a central institution that research skills are foregrounded.

PROMPT: What do you think when you dream about an educational structure that focus on personalized/ individualized education and support education 7/24/365?

PROMPT: Could you explain the main features of this structure?

PROMPT: What kind of political orientation can make this structure possible?

PROMPT: Under which geo-political circumstances this structure can survive?

APPENDIX G: Vitae

SEVINC TUNALI

EDUCATION

Middle East Technical University, September 2010- August 2014. Cankaya, ANKARA
Social Sciences Institute, Department of Educational Science, Ph.D. program in Curriculum and Instruction.

California State- Sonoma State University, August 2008- March 2009. California, USA.

Attained MA courses at Faculty of Education - Curriculum, Teaching & Learning Concentration as a Pre-Doctoral study.

Istanbul University, October 2005 – October 2007. Beyazit, ISTANBUL

Social Sciences Institute, Department of Gifted Education, MA

Thesis Topic: The validity, reliability and pre-norm study of Raven Standart Progressive Matrices (SPM) plus test for 8-9 ages and examination of the concrete reasoning ability of gifted and normal students.

Istanbul University, October 2003 – January 2007. Beyazit, ISTANBUL

Department of Special Education, Teacher Training Program in Gifted Education, BA

Istanbul University, October 2001– June 2005. Beyazit, ISTANBUL

Department of Educational Science, Counseling Psychology Program, BA

CERTIFICATES

Future Leaders for the World, May 2014. Istanbul

The Future Leaders for the World Leadership Program, Workshop of Prof. Stefano D' Anna. Philosophy of Leadership. Total 72 Hours.

Sunbridge Institute, July 2013. Chesnut Ridge, Newyork- USA

Hours: Waldorf Peadagogy (Early Childhood/ Elementary/ High School) (4.25), Eurythmy (.75), Introduction to Antroposhopy (1.5) and Fine Arts (1.5). Total 8 Credits.

University of Connecticut, Storrs- USA

Center for Excellence in Teaching and Learning, Confratute,

Gifted Education, Differantiation (Elementary, Middle School, High School), Schoolwide Enrichment Model (SEM). Total 30 Hours.

Appendix H: Turkish Summary

Günümüzde insanlar son derece karmaşık ve global bir dünyada yaşamaktalar. Geçtiğimiz yüzyıl teknolojideki hızlı gelişme toplumun yasayışında son derece büyük değişikliklerin olmasına sebep oldu ve bu değişikliklerin nerede duracağı veya nereye kadar gideceği konusunda da bir öngörü bulunmamaktadır. Eğitimciler olarak bizim görevimiz, öğrencileri geleceğe hazırlamak olsa da sınırsız olasılıklar içeren bilinmeyen geleceğe hazırlanmak hiçte kolay bir iş değildir.

Bu çalışmanın konusu geleceğin okullarıdır. Bu araştırma konusu araştırmacının kişisel ilgi alanının yanı sıra, ülkemizde geleceğe yönelik olarak yapılan planlamaların yetersiz olduğunun tecrübe edilmesinden kaynaklanmıştır. Araştırmacı öncelikle ‘neden bugünkü okulların geliştirildiğini’ ve ‘gelecekte ne tip okulların ortaya çıkabileceğini’ araştırmıştır. Bu konu içerisinde araştırmacı kasıtlı olarak, geleceğin eğitimi değil; geleceğin okullarına odaklanmıştır. Bir eğitim enstitüsü olarak okul eğitimin bir parçası olmakla birlikte, eğitim kavramı kadar geniş bir kavram değildir.

Gelecek bizim bugün yaptığımız seçimler ile belirlenir. Türkiye de ki eğitim politikaları araştırıldığı zaman, eğitim politikalarında karar almanın önemli ölçüde geleceğe yönelik düşünme prosedürleri ile alınmadığını görmekteyiz. Bu sebeple, bu araştırmanın yapılması uzun dönemli yada bir başka deyişle; sürdürülebilir politikaların oluşturulması ve ayrıca politika önerilenine bilimsel veri oluşturması açısından önem arz etmektedir. Bunun yanında bu çalışmanın birkaç noktada daha önemi vardır. Bu çalışma eğitimcilerin farklı seçenekleri keşfetmesini sağlaması açısından önem taşımaktadır. Eğitimciler kullanılan senaryo yöntemi sayesinde uygulamalarındaki güçlü, güçsüz yönleri ve potansiyel tehdit ve fırsatları daha iyi değerlendirebilirler. Bu çalışma ayrıca insanların eğitim hakkındaki var olan düşüncelerini sorgulamalarına yol açacaktır. Eğitimciler kendileri eğitim aldıkları şekilde eğitim vermeye eğilimli oldukları bilinen bir gerçektir. Bu çalışmada ortaya çıkartılan senaryolar eğitimcilerin kendi

kullandıkları yöntemlerin dışında olasılıklar olduğunu ortaya koyması açısından önem taşımaktadır. Son olarak dünyada yapılan gelecekteki eğitim ve okulların durumu hakkında yapılan ön görü çalışmaları ile karşılaştırma yapma açısından önem taşımaktadır.

Bu çalışma bir problem çözme veya geleceğin okullarına yol haritası oluşturmaktan ziyade gelecekte ortaya çıkabilecek muhtemel okul tiplerinin neler olabileceğinin tartışılması amacı ile gerçekleştirilmiştir.

Bu çalışmada iki temel araştırma sorusu sorulmuştur:

1. Gelecekteki okullar ne şekilde ortaya çıkacaklar?
 - 1.1 Eğitim uygulayıcılarının geleceğin okulları hakkındaki görüşleri nelerdir?
 - 1.2 Türkiye’de ki geleceğin K-8 okullarını şekillendiren temel trendler nelerdir?
2. Globalleşme ve teknolojiyi gözüne aldığımız zaman Türkiye deki geleceğin okulları için muhtemel senaryolar nelerdir?

Araştırmanın bu amacını gerçekleştirmek için araştırma üç faz olarak dizayn edilmiş ve uygulanmıştır. Araştırmanın birinci ve ikinci fazında araştırmacı ‘Gelecekteki okullar ne şekilde ortaya çıkacaklar?’ sorusuna yanıt aramıştır. Bu soruyu cevaplamak için birinci fazda eğitim uygulayıcılarının geleceğin okulları hakkındaki görüşleri alınmıştır. Bu fazda ilk olarak geleceğin okulları konseptini temsil eden bir örnek okul seçilmiş ve bu örnek okulun yönetici ve öğretmenleri ile görüşmeler yapılmıştır. Buradan alınan sonuçlar uygulayıcıların, geleceğin okullarının ‘öğrenci merkezli’ bir yapıda olmasına yönelik çıkmıştır. Bu sonucu değerlendirdiğimiz zaman öğrenci merkezli bir okul olmak gelecekte keşfedilmesi beklenen bir uygulama olmaktan çok ülkemizde uygulanmayan bir yaklaşımdır. Türkiye de merkezden hazırlana programlar ve merkezden yönetim ‘öğrenci merkezli eğitim’ yapan okulların oluşmasına olanak vermemektedir. Çünkü öğrenci merkezli eğitim yapmak ülkemizde kullanıldığı gibi standart bir programı uygulamak değil öğrencinin tercihlerini ön plana almak

ile mümkündür. Bu durum arařtırmacıyı ‘öğrenci merkezli’ okullarda ki eğitimcilerin perspektiflerini almak üzere Amerika Birleşik Devletlerinde ki ‘Alternatif okullar/ Öğrenci merkezli okullar’ da çalışma yapmaya yönlendirmiştir. Bu çalışma sırasında çeşitli okullarda gözlemler ve öğretmenler ile görüşmeler yapılmıştır. Burada farklı okul tiplerinin temsil edilmesi açısından maksimum çeşitlilik örnekleme (maximum variation) kullanılmıştır. Sonuç olarak eğitim uygulayıcıların görüşleri açısından geleceğin okullarının (1) öğrenciler arasındaki farklılığa saygı duyan (2) Eğitim programının serbestleştirildiği (3) toplum ve okul işbirliğinin güçlendiği bir yer olması beklenmektedir. Bunun yanında bu okullar ortaya çıkabilmesi için ailelerin önem verdikleri değerleri değerlendirmemiz gerekmektedir. Son olarak da bu okulların ortaya çıkması ile okulların sosyal ve fiziksel ortamın ve öğrenci- öğretmen rollerinin değişeceğini göz önüne almamız gerekmektedir.

Bu çalışmanın ikinci fazı, dünyadaki toplumları etkileyen temel trendleri belirlemeye yönelik olarak yapılan masa çalışması (desk research) ile başlamıştır. Bu çalışma ile belirlenen trendlerin hangilerinin Türkiye bağlamında daha önemli olduğunu belirlemek için uzmanlarla görüşmeler yapılmıştır. Bu görüşmeler için uzmanlar kartopu örnekleme (snowball sampling) yöntemi ile belirlenmiştir. Araştırmanın bu bölümünün sonucunda ‘Türkiye’de ki geleceğin K-8 okullarını şekillendiren temel trendler nelerdir?’ sorusuna yanıt olarak belirlenen trendler ‘Globalleşme’ ve ‘Teknoloji’ dir. Araştırmanın sonuçlar kısmında ayrıntılı olarak belirtildiği üzere, globalleşme ve teknoloji trendlerinin birçok alt teması bulunmakta ve bu temaların her biri okulları farklı bir şekilde etkilemektedir. Globalleşme: Bilgi yoğunluklu ekonomi, iş ve kariyerde ki değişim, global eşitsizlik ve eğitimin globalleşmesi alt temaları ile eğitime etki ederken teknolojinin ayrı boyutları vardır. Bunlar: okullarda bilgi ve iletişim teknolojilerini kullanılması, kişiselleştirilmiş eğitim ve karma/ harmanlanmış öğrenme modelleridir. Tüm bu etkenleri göz önüne alarak okulların öngörülen değişimi yaşamaya başladıklarının ve ileride de bunun hızla süreceğini söyleyebiliriz.

Araştırmanın son fazı, faz üç, senaryo geliştirme metodu ile yapılmıştır. Senaryo geliştirmek için öncelikle, birinci ve ikinci fazların sonuçları değerlendirilmiş ve senaryo matrisi oluşturulmuştur. Senaryo matrisinde iki boyutlu bir düzlem oluşturulmuştur. Senaryolar için belirlenen iki boyut trend analizinin sonuçlarından çıkan globalleşme ve teknoloji trendleridir. Bu trendlerin alt boyutları ise birinci faz da elde edilen verilerin değerlendirilmesi sonucunda son halini almıştır. Sonuç olarak ortaya dört senaryo çerçevesi çıkmıştır. Bu senaryo çerçeveleri uzman görüşmeleri ile değerlendirilmiş ve detaylandırılmıştır. Görüşmelerdeki katılımcıların belirlenmesi için, maksimum çeşitlilik (maximum variation) örnekleme kullanılmıştır. Sonuç olarak ortaya dört adet, olası senaryo ortaya çıkmıştır. Bu senaryolardan birincisi, okulların uluslararası standartlar ile düzenlenmiş bir yapıya sahip olması ile karakterize olmuştur. Senaryo çerçevesi olarak belirlenen yapı, Türk eğitim sistemindeki güncel sorunlardan en önemli ülkemiz gençlerinin uluslararası sınavlarda sürekli düşük başarılar göstermesi olmuştur. Okullarımızı uluslararası değerlendirmelerde üst düzeylere çıkartabilmek ve uluslararası eğitim ihtiyaçlarına (sınav, akreditasyon, eğitim programı vs.) cevap verebilecek konuma getirmek için neler yapmamız gerekir? Sorusuna cevap aranmış ve cevaplar araştırmanın 1. Senaryosunu oluşturmada kullanılmıştır.

İkinci senaryo için sadece teknolojinin eğitim ortamına nasıl aktarılacağı değil, kişiselleştirilmiş, daha şeffaf ve ulaşılabilir eğitim kaynaklarının sağlanması ile ilgili her türlü düzenlemenin nasıl yapılacağı konusu üzerinde durulmuştur. Bu senaryo eğitime farklı kaynaklardan ulaşılmasını sağlamaktan çok eğitimi her türlü kaynakla desteklemeyi amaçlar. Bu senaryoda amaç teknolojinin aktif olarak kullanılmasının ötesinde eğitimin belli standartlar çerçevesinde öğrenenin de ihtiyaç ve ilgisine cevap veren bir araç olarak nasıl kullanılabileceğinin tartışılmasıdır. Kişiselleştirilmiş eğitimden bahsederken bu kavram “bireyselleştirilmiş eğitim” anlamında kullanılmamaktadır. Kişilerin kendi ilgi ve yetenekleri ile belli standartlara ulaşması amaçlanmaktadır.

Üçüncü senaryo da üzerinde durulan husus eğitimdeki farklılıklara cevap veren okul ortamlarının nasıl olacağını tartışılmasını içerir. Günümüzde okulların toplumsallaşma işlevinin ön planda olduğunu kabul edersek, bu duruma yönelik okullarda “tek tip insan yetiştirme” eleştirileri getiriliyor. Bu tatminsizliği gidermek, öğrencilerin ilgi ve yeteneklerine göre farklılaştırılmış bir eğitimin verildiği bir okul sizce nasıl olur? Sorusu katılımcılara sorulmuştur. Okul ortamının öğrencinin ihtiyaç, ilgi ve tutumlarına göre şekilleneceği esnek bir okul yapısı oluşturulacaktır. Amaç standartlaşmış hedeflere ulaşmak değil her öğrencinin kendi hızında ve yeteneğinde ilerleyebileceği bir ortam yaratmaktır. Bu senaryo okulu, bir olgunlaşma, kendini tanıma ve gerçekleştirme süreci haline getirecek bir kurum düzeyine getirmektir.

Dördüncü ve son senaryoda okulların bireyselleştirilmiş ve 7/24/365 şekilde organize olabileceği bir yapının nasıl olacağı tartışılmıştır. Günümüz okullarını göz önüne aldığımızda zorunlu eğitim altında okul bir hizmet sağlar (eğitim-öğretim) ve öğrencilerde bu hizmeti zorunlu eğitim altında alırlar. Okulların ve öğrencilerin zorunluluğun olmadığı bir sistem yapılanmasında öğrencilerin öğrenme hakkında kendilerinin karar verdikleri ve okulların öğrencilerin bu kararlarına yanıt verebilmesinin mümkün olduğu bir sistemi düşünerek nasıl bir okul modeli önerirdiniz? Sorusu katılımcılara sorulmuş ve alınan cevaplar ile olası bir senaryo üretilmiştir. Bu senaryoda öğrenenler arasında ki farklılığın merkeze alındığı ve herkes için ulaşılması gereken standartların belirlenmediği ve öğrenenin kendi sorumluluğunu alabileceğine inanılan bir organizasyon öngörülmüştür. Bu yapıdaki bir organizasyon yüksek derecede ebeveyn katılımı, toplum desteği ve güvenine sahip bir ortamda oluşturulacaktır. Bu yapı tipik bir okuldan çok araştırma becerilerinin ön plana çıktığı bir bilgi merkezi yapısını temsil eder. Öğrenenler yaş ve sınıf seviyelerine ayrılmadan, danışmanlarla görüşerek kendi ilgi ve ihtiyaçlarına göre hazırlayacakları programlar ile öğrenme ortamına katılacaklardır. Bu katılım yaş seviyesinden çok ilgi ve ön bilgi seviyesine göre düzenlenen grup veya bireysel çalışmalarla yapılacaktır. Sınıf seviyeleri olmadığı için eğitim basamakları arasında geçiş ve

sınıf tekrarı söz konusu olamayan tamamen açık bir sistem olacaktır. Öğrenenlerin kurum dışından da 7/24 eğitim kaynaklarına ulaşabilmeleri için gerekli bilgi sistemi kurulacaktır.

Sonuç olarak, bu araştırma eğitimde bir yandan uluslararası bir standartlaşmanın olduğunu bir yandan da, eğitimcilerin geleceğin eğitiminin bireyselleştirilmiş modeller üzerine kurulacağını belirtmesi üzerine oluşabilecek senaryoların açıklanmasını içerir. Araştırma sonucunda ortaya çıkabileceği ön görülen senaryolar eğitim politikaları oluşturulurken dikkate alınabilecek hususları içerir.

Appendix I: Tez Fotokopisi İzin Formu

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü

Sosyal Bilimler Enstitüsü

Uygulamalı Matematik Enstitüsü

Enformatik Enstitüsü

Deniz Bilimleri Enstitüsü

YAZARIN

Soyadı :

Adı :

Bölümü :

TEZİN ADI (İngilizce) :

TEZİN TÜRÜ : Yüksek Lisans

Doktora

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabili

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: