INTERGENERATIONAL INFLUENCE ON SUSTAINABLE
CONSUMPTION ATTITUDES AND BEHAVIORS

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Approval of the Board of Graduate Programs

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ABSTRACT

INTERGENERATIONAL INFLUENCE ON SUSTAINABLE CONSUMPTION ATTITUDES AND BEHAVIORS

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Supervisor: Assist. Prof. Dr. Carter Mandrik

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Intergenerational influence (IGI) refers to the transfer of skills, preferences, choices, beliefs, values, attitudes, and behaviors from one generation to another, where it is often studied under the broader heading of consumer socialization. Admittedly, consumer researchers have studied IG transmission of different consumption attitudes and behaviors within the family. However, IG consumer research explicitly examining sustainable consumption attitudes (SCAs) and behaviors (SCBs) is significantly lacking. Thus, the present dyadic study will attempt to understand the existence of IGI on fifteen different SCAs and SCBs between two members of a given family: mothers and college-age daughters, using parallel survey methodology, nominal dyad method, and self-reported measures. In particular, two following factors will be studied in the domain of IGI, namely, parent-child communication and peer influence. Moreover, the direction of IGI will be investigated based on the co-orientational model and partially confirmed with dyads' subjective knowledge on sustainable consumption. Responses obtained from 146 Turkish mother-daughter dyads. Data analyzed

using IBM SPSS V25.0, AMOS 25, and utilizing a macro tool for randomizations. Results of the study not only revealed the existence of IGI on dyads' SCAs and SCBs after accounting for nominal effects but also indicated that communication effectiveness between mother-daughter pairs is positively related to IG similarity, whereas peer influence on daughters is negatively related to IG transmission of SCAs and SCBs. Results surprisingly confirmed the existence of reverse IGI on sustainable consumption. Outcomes of this study are believed to contribute to the sustainable consumer socialization literature by providing a better understanding of IG transmission of sustainable consumption and may help practicing marketers to develop communication and positioning strategies while enhancing sustainability marketing efforts.

ÖZ

NESİLLER ARASI ETKİ VE SÜRDÜRÜLEBİLİR
TÜKETİM TUTUMLARI VE DAVRANIŞLARI

Eşsiz, Oğuzhan
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Nesiller arası etki, bir kuşaktan diğerine becerilerin, tercihlerin, seçimlerin, inançların, değerlerin, tutumların ve davranışların aktarımını ifade eder ve sıklıkla daha geniş olan tüketici sosyalleşmesi başlığı altında incelenir. Tüketici araştırmacıları, aile içerisinde, çeşitli tüketim becerileri, tutumları, davranışları ve seçimlerinin nesiller arası aktarımını incelemişlerdir. Ancak, mevcut literatürde, nesiller arası etki ve sürdürülebilir tüketim tutumları ve davranışları arasındaki ilişkiyi inceleyen çalışma eksikliği bulunmaktadır. Dolayısıyla, bu çalışmanın amacı, paralel anket metodolojisi, nominal çift metodu ve kişisel bildirim ölçütlerini kullanarak, annelerin ve üniversite çağındaki yetişkin kız çocuklarının arasındaki on beş farklı sürdürülebilir tüketim tutumu ve davranışının nesiller arası etkisini incelemektir. Bu çalışma ile, nesiller arası etki bağlamında incelenen bağımsız değişkenler: çocuk-ebeveyn iletişimi ve akran etkisi olarak adlandırılabilir. Ayrıca, nesiller arası aktarımın yönü eş yönelimli model yardımı ile araştırılmaktadır ve çiftlerin sürdürülebilir

tüketim hakkındaki sübjektif bilgileri ile bölümsel olarak doğrulanmaktadır. Çalışmanın verileri, 146 Türk anne ve kız çiftinin katılımı sonucu elde edilmiştir. Toplanılan veriler, IBM SPSS V25.0, AMOS 25 programları ve bir makro aracı kullanılarak analiz edilmiştir. Çalışmanın sonuçları, sürdürülebilir tüketim tutumları ve davranışları bağlamında, anne ve kız çiftleri arasındaki nesiller arası etkinin varlığını ortaya koymakla kalmayıp, artan anne-kız iletişiminin daha fazla nesiller arası aktarıma yol açtığını, kızlar üzerindeki artan akran etkisinin ise daha az nesiller arası etkiye yol açtığını belirtmektedir. Bulgular, nesiller arası aktarımın yönünün, kızlardan annelere doğru daha fazla olduğunu göstermektedir. Araştırmanın çıktılarının, sürdürülebilir pazarlama ve sürdürülebilir tüketici sosyalleşmesi alanlarının geliştirilmesine yardımcı olması beklenmektedir.

Anahtar Kelimeler: Sürdürülebilir Pazarlama, Sürdürülebilir Tüketim, Sürdürülebilir Tüketici Sosyalleşmesi, Nesiller Arası Etki, Eş Yönelimli Model, Paralel Anket Yöntemi, Nominal Çift Metodu, İletişim Etkinliği, Akran Etkisi, Sübjektif Bilgi, Ters Aktarım, Anne-Kız Çiftleri

To all life on the Planet Earth, Our Home.

&

In the hope of a sustainable, greener, peaceful, healthy, and bright days ahead.

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LIST OF ABBREVIATIONS

AMOS	Analysis of a Moment Structures
ATSCI	Attention to Social Comparison Information
AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CI	Confidence Interval
CMIN/DF	Chi-Square Mean/Degree of Freedom
CR	Composite Reliability
CST	Consumer Socialization Theory
D	Daughter(s)
df	Degrees of Freedom
DVs	Dependent Variable(s)
ECCB	Ecologically Conscious Consumer Behavior
EFA	Exploratory Factor Analysis
FCPs	Family Communication Patterns
FIS	Friends' Interest in Sustainability
GFI	Goodness of Fit Index
GLM	Generalized Linear Model
IG	Intergenerational
IGI	Intergenerational Influence
IVs	Independent Variable(s)
KS	Kolmogorov Smirnov
M	Mother(s)
METU	Middle East Technical University
NAT	Norm Activation Theory
N	Total Sample Size
n	Sample Size of a Particular Group

ND	Nominal Daughter(s)
NS	Not Significant
OECD	Organization for Economic Cooperation and Development
PACS	Parent-Adolescent Communication Scale
PCA	Pearson's Correlation Analysis
PCC	Parent-Child Communication
PCE	Perceived Consumer Effectiveness
PCSS	Parent-Child Socialization Study
PI	Peer Influence
PISA	Programme for International Student Assessment
PRC	People's Republic of China
RD	Real Daughter(s)
RM	Real Mother(s)
RMSEA	Root Mean Square Error of Approximation
SCAs	Sustainable Consumption or Consumer Attitude(s)
SCBs	Sustainable Consumption or Consumer Behavior(s)
SCVs	Sustainable Consumption or Consumer Value(s)
SD	Standard Deviation
SDT	Self Determination Theory
SE	Standard Error
SEM	Structural Equation Modeling
SFCB	Sustainable Fashion Consumption Behaviors
Sig.	Significant
SLT	Social Learning Theory
SNT	Social Norms Theory
SPSS	Statistical Package for the Social Sciences
SRCB	Socially Responsible Consumption Behaviors
SRPD	Socially Responsible Purchases and Disposal

SSCK	Subjective Sustainable Consumption Knowledge
TPAS	Total Prediction Accuracy Score(s)
TPB	Theory of Planned Behavior
UNEP	The United Nations Environment Programme
UNESCO	The United Nations Educational, Scientific and Cultural Organization
US	United States
VIF(s)	Variance Inflation Factor(s)

CHAPTER 1   INTRODUCTION

1.1.   Chapter Outline

This chapter is divided into three different but connected sections. First, the evolution of sustainability as new marketing and the business phenomenon is introduced. Specifically, readers are informed about the rising phenomena of sustainability marketing and overall research activities in the field (see Section 1.2). Next, the place of intergenerational influence (IGI) in the broader realm of consumer socialization is examined, where readers are acquainted with the concepts of consumer socialization and IGI. Further, the topic of reverse IGI and the scope of intergenerational (IG) research, particularly in the general consumption domain, is investigated, and the methodological limitations of early IG consumer research and related countermeasures are discussed correspondingly. Finally, different factors influencing IGI in the consumer behavior realm are explored briefly (see Section 1.3). Afterward, study objectives and the importance of conducting IG sustainable consumption research with an effort to fill the gaps in the consumer socialization literature are specified, and the organization of the study is detailed at the end of this chapter (see Section 1.4).

1.2.   Sustainability and Marketing: A Collision Course

"*Frugality is one of the most beautiful and joyful words in the English language, and yet one that we are culturally cut off from understanding and enjoying. The consumption society has made us feel that happiness lies in having things and has failed to teach us the happiness of not having things.*" – *Elise Boulding (1973)*

In the twentieth century, the world is confronting severe environmental problems as never experienced before, and humans are liable for a large portion of them. For instance, numbers of natural disasters are increasing, global temperatures are rising, weather patterns are changing drastically, and adverse effects of greenhouse gases caused by humankind are apparent (e.g., Cramer et al., 2014). Direct and indirect impacts of human-made activities to urbanization, deforestation, manufacturing, and fossil fuel consumption have relentlessly increased the carbon dioxide concentration in the atmosphere since the industrial revolution (e.g., Forster et al., 2007). Therefore, it is plausible to say that human actions are potentially and noticeably rendering the earth inhospitable in the not-too-distant future.

Arguably, people currently live in a culture of consumption, so consumption is inextricably linked to sustainability, with unsustainable consumption activities and socio-ecological issues emerging as significant problems facing humanity. Even though the majority of people may be motivated or want to meet their present needs while not compromising the environment, they typically struggle in translating their environmental commitments, beliefs, and attitudes into real actions and positive behaviors (e.g., Young et al., 2010) and they frequently end up making antithetic consumption choices. Hence, as stated by Trudel (2019, p.85), the global consumer society has exceeded the limits of overconsumption (i.e., dark side of the consumption) as decisions about what products to buy, how much to buy, and how to consume goods and services have adverse effects on the environment and the cumulative effects of each decision can be massively destructive for the well-being of future generations. In this respect, Ivanova et al. (2016, p.526) revealed striking scientific

evidence showing that total household consumption as part of the consumer society is accountable for more than 60% of global greenhouse gas emissions in the atmosphere.

To avert the negative impacts of environmental deterioration, all accountable stakeholders, including, but not limited to governments, non-governmental organizations, industry, and consumers have been compelled to take preventive measures (see Hume, 2010, p.385). This joint action as a counter-response to the industrial revolution and environmental degradation has been called the "*Sustainability Revolution*" paradigm in the research literature (e.g., Harrison, 1994). Considering the fact that the "*sustainability*" term has more than three hundred different interpretations in the developing literature (see Manderson, 2006 for discussion), one of the widely recognized and acceptable explanations of this megatrend was delivered and brought into the mainstream by the World Commission on Environment and Development under the broader heading of sustainable development. It was formally defined as "*meeting the needs of present generations while not compromising the capability of future generations to meet their own needs*" in the Brundtland Report, which was published in October 1987 (see United Nations, 1987, p.15).

Unsurprisingly, as time goes by, serious attention is being paid to topics related to sustainability and its relationship with marketing, particularly consumer behavior perspective from large masses; including scholars, practitioners, and consumers to be utilized in education, managerial applications, and consumer strategies over the past few decades – albeit still no global consensus on the term of sustainability marketing. At first glance,

people have a preconception that there is a controversial dilemma between sustainability and marketing. That is to say, "*marketing is seen as the antithesis of sustainability in many ways.*" (see Jones et al., 2008, p.123 for discussion).

In this collision course, from different scholars, it is commonly observed that sustainability urges people to consume less, and marketing encourages them to consume more, triggering some societal problems (e.g., Sheth and Sisodia, 2005; Grant, 2012), where these two concepts mainly contradict each other. For example, Pereira Heath and Chatzidakis (2012) highlighted that marketing activities have been blamed by consumers for causing unsustainable patterns of consumption and promoting a materialistic lifestyle (e.g., wasteful packaging, "*the strategy of planned obsolescence*"). Consequently, drastic and observable increases in the consumers' environmental concern level have eventually led to the emergence of new marketing specializations to resolve this dilemma, sustainability marketing, which is evolved from and used interchangeably with green marketing, eco marketing, sustainable marketing, and environmental marketing among them. In this study, it is worth noting that we solely prefer to use the term "*sustainability marketing*" since the phrase itself represents a holistic and broader long term approach (i.e., solutions) to consumer behavior processes related to sustainability, as suggested by Peattie and Belz (2010, p.10-11).

At the beginning of the 1990s, sustainability marketing was introduced to protect and preserve environmental resources while utilizing marketing tools to accelerate exchanges that satisfy both organizations and consumers (see Mintu and Lozada, 1993; Polonsky, 1994, p.2). Similarly, Ferrell and Pride (1993)

conceptualized the notion of sustainability marketing as the sustainable execution and use of marketing 4Ps (i.e., marketing mix) by "*designing, pricing, promoting and distributing*" goods and services in a way that causes no harm to the environment. This conceptualization is about delivering the "*marketing mix*" in a more sustainable and green manner, as also supported by Charter et al. (2006, p.20) in their seminal report. According to Belz and Peattie (2013, p.28), sustainability marketing is a much broader concept and puts sustainable development goals[1] into its agenda, where both consumers and producers are required to alter their behaviors accordingly. In today's world, sustainability marketing practices are both part of managerial strategies and consumer behavior – choice processes (see Bridges and Wilhelm, 2008 for discussion), as will be elaborated below with the help of existing research in the area.

From the managerial perspective, sustainability marketing implications may provide substantial opportunities and various use cases for businesses. For instance, Bridges and Wilhelm (2008) emphasized that businesses have started to release sustainability performance reports by including sustainable actions as the primary measurement criteria for their social, environmental, and economic standings, which are known as three pillars/legs of the sustainability. With the continuation of growing awareness of the sustainability marketing field, the inclusion of sustainability reports in companies' agenda has not only become a requirement but also become a compulsory obligation. What is more, Grubor

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[1] Along with the perspective of sustainability marketing, we contend that 1) promoting responsible (i.e., sustainable) consumption and production activities; 2) ensuring sustainable economic growth are two essential sustainable development goals declared by United Nations (2019) and they should not be neglected in any sustainability marketing process. Sustainable development goals are retrieved 14 October, 2019 from https://www.un.org/sustainabledevelopment/sustainable-development-goals/

and Milovanov (2017) stated that the right implications of sustainability marketing practices on potential consumers can help businesses to increase their brand reputation and brand equity. In this aspect, according to Hardcastle (2013), the importance of conducting sustainable business activities is urgently recognized by many global corporations operating in different industries. Today, we see multinational corporations such as Starbucks, Nike, and Unilever integrating sustainability efforts into their business plans and using them as a growth tool in positioning their brands.

Additionally, a study conducted by Arseculeratne and Yazdanifard (2014) showed that putting sustainability-related mindset and goals can benefit businesses to reduce their failure risks and increase their market opportunities by helping them to achieve better performance and competitive advantage specifically in saturated markets. Likewise, it was reported that corporate social responsibility efforts in the context of sustainability can create an absolute competitive advantage for businesses (Porter and Kramer, 2006). To confirm the positive impact of sustainability marketing implications, Nguyen and Slater (2010) selected thirty-one sustainable businesses that are traded in the New York Stock Exchange and listed at least twice in the "*Global 100 Sustainable Corporations Index.*" By analyzing their three-year average return on assets, revenue growth rates, and market shares compared to unsustainable competitors, they concluded that two-thirds of thirty-one sustainable businesses outperformed their unsustainable competitors. In brief, as discussed above, the effects of integrating sustainability practices into managerial and marketing activities of firms are being researched, and there is an

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emerging consensus on the positive impacts of sustainability marketing efforts.

From another perspective, sustainability can be used in marketing research to examine consumption and consumer behavior processes. Having shown that interest in sustainable consumption among North American consumers has been growing over the past few decades (see Roper Organization, 1992), marketing research efforts to understand the consumer side (i.e., demand-side) of sustainability have gained momentum globally and these efforts are growing with a particular emphasis on analyzing and identifying the potential identity of sustainable consumers, sustainable consumption values (SCVs), sustainable consumption attitudes (SCAs), and sustainable consumption behaviors (SCBs), as noted by Prothero et al. (2011, p.31-32).

To exemplify, Gilg et al. (2005) focused on identifying the characteristics of sustainable consumers by conducting a study with 1600 households in Devon, United Kingdom, and asking questions related to individuals' everyday pro-environmental attitudes and behaviors (e.g., recycling habits). Results identified more than four types of sustainable consumers and environmentalists with different behavioral attitudes in which each of them engages with sustainability in their own unique ways. Another study conducted by Kanchanapibul et al. (2014) investigated young consumers' purchasing behaviors toward sustainable consumption. Results showed that compared to other consumer groups, young consumers are more reactive to environmental problems and more willing to practice sustainable consumption to a greater degree because they have higher

ecological knowledge [2] due to the availability of technology in exchanging information.

Furthermore, Mainieri et al. (1997, p.201) showed that compared to men, women are more concerned about the environment, and they significantly engage more in sustainable consumption activities, mainly green buying practices. Nevertheless, in the study, only middle-class communities were surveyed, where consumers are more likely to be aware of the environmental issues in their consumption decisions. Accordingly, the results of the study may not be binding (i.e., valid) and can change for the people who live in different economic strata.

At a macro level, a comprehensive report published by Eurobarometer (i.e., European Commission) (2009) attempted to measure Europeans' attitudes and behaviors toward sustainable consumption in twenty-eight countries. Auspiciously, one of the study's results revealed that eight of ten European Union citizens consider the negative impacts of products on the environment in their buying decisions. Findings among the others were that more than half of the European Union citizens take energy-efficiency and ecolabelling issues into consideration in their consumption choices. In a similar vein, Nielsen Cooperation (2011) conducted an extensive online global sustainability survey with the participation of 25,000 respondents in fifty-one different countries. Findings indicated that an average of 69% of global consumers is worried and concerned about global warming and climate change

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[2] As supported by Peattie (2010, p.206), environmental (i.e., ecological) knowledge is broadly recognized as a significant positive driver of behaviors related to sustainable consumption in the research literature. This assertion suggests that as consumers get more knowledgeable about environmental issues, they will be more likely and motivated to engage in sustainable consumption activities. The relationship between subjective knowledge and sustainable consumption will be further explored and discussed in section 3.6.

issues, which may push them to take sustainability-related factors into account during their consumption activities.

Undeniably, as discussed by Jones et al. (2008, p.128), even though sustainability and marketing may appear to be different and opposing concepts, they indeed have many things to share and offer each other in mutually solving environmental, social, and economic problems. As discussed above, there is a growing body of research pool that focuses on the consumer behavior side of sustainability – mostly recognized as the area of "*sustainable consumer behavior.*" There is an exceptionally high interest in the question of how to get people to consume more sustainably and the reasons underlying sustainable consumption. Explicitly, many efforts have been devoted to identifying different factors potentially influencing sustainable consumption practices. Among the many factors investigated, social influence is one that stands out and has proven to be a significant factor that may potentially foster sustainable consumer behavior and influence sustainable consumption practices (e.g., Goldsmith and Goldsmith, 2011; Abrahamse and Steg, 2013; Salazar et al., 2013; Goldsmith, 2015). In this regard, as mentioned by Matthies and Wallis (2015, p.277), among different facets of social influence, there is a lack of research attention being paid to understand the nexus of family influence, peer influence (PI), and sustainable consumption practices.

Considering this research gap, in this study, we focus on sustainable consumer attitudes and behaviors to investigate the IG transmission of sustainable consumption within the theoretical context of consumer socialization. More detailed information and justification about literature gaps are provided in section 1.4 and 2.3, jointly. Moreover, related definitions and background

information on the concept of sustainable consumption are further provided in section 2.2.

1.3. Consumer Socialization and Intergenerational Influence

"*We do not inherit the Earth from our ancestors; we borrow it from our children.*" - *Native American Proverb (n.d.)*

For the last few decades, consumer researchers have been started to study an important topic known as consumer socialization. Within the framework of consumer socialization, they tried to understand how young consumers, from childhood, acquire resources, knowledge, skills, beliefs, attitudes, and behaviors about the marketplace while developing their unique consumer identity and ideas (see Moschis and Churchill, 1978, p.599; Ward, 1974, p.2). Explaining it briefly, the consumer socialization process principally investigates children and how they turn themselves into "*practicing consumers*" (John, 1999, p.183). In the process, previous research has plainly shown that children's consumption behaviors are predominantly developed and shaped by various socialization agents such as family or non-family institutions like "*culture, mass media, school, and peers*" (e.g., Ward, 1974; Moschis, 1985; John, 1999, p.205). Among these socialization institutions, the family, especially parents, are considered to be the primary and most crucial socialization agent (e.g., John, 1999; Moore et al., 2002; Mandrik et al., 2005, 2018) because, within the family, children take their initial steps to become consumers and members of society. They first begin to see the variety of products and appreciate the value of them in the development of their own set of overall consumption choices such

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as brand preferences. Eventually, they learn their roles about how to negotiate as shoppers (e.g., Moschis and Moore, 1984; see Mandrik et al., 2018, p.91 for discussion). In this scope, the theory and phenomenon of IGI exists within the context of consumer behavior, where parents as primary influencers transmit and expose their marketplace resources, values, beliefs, concerns, attitudes, and behaviors to their offspring both directly and indirectly (see Heckler et al., 1989, p.276; Shah and Mittal, 1997, p.55). Briefly, IGI mainly refers to parental influence on children wherein it has a long and stable effect that can span across many generations (i.e., from one generation to another). Chiefly, it oper-
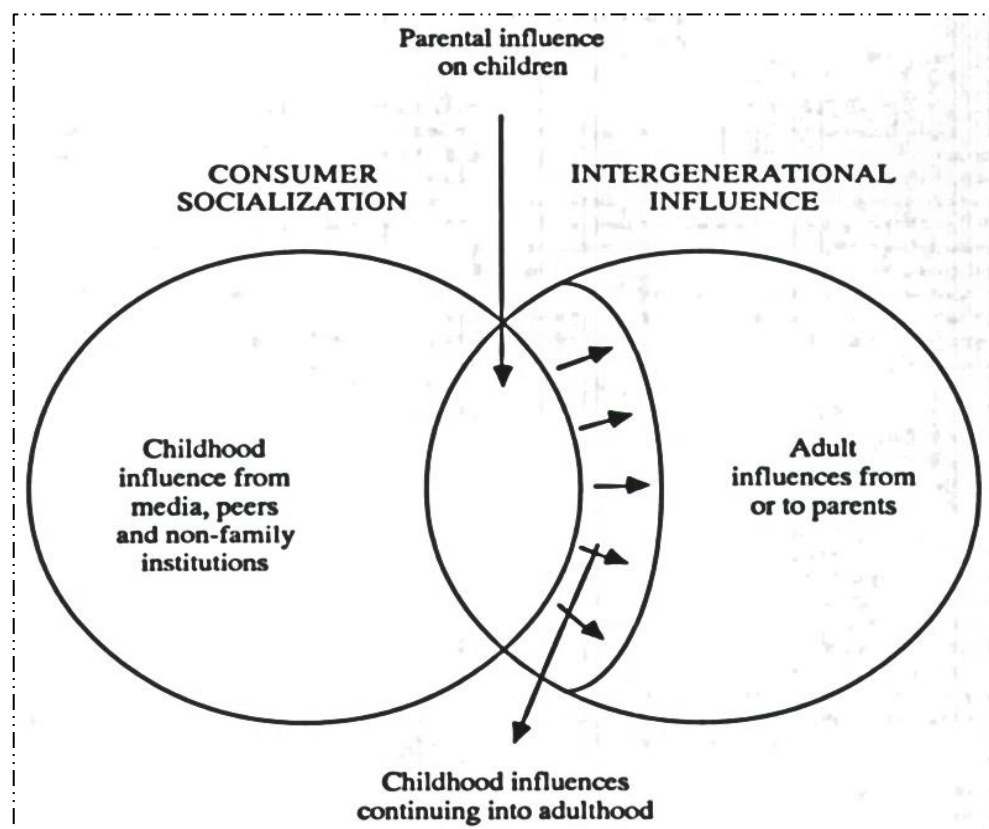
Figure 1.1. The place of intergenerational influence in the realm of consumer socialization: Adapted from Shah and Mittal (1997, p.56)

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ates exclusively among family members and begins when children start to develop their independent decision-making abilities; commencing with late childhood and continuing into early adulthood and perhaps beyond, where it has exclusively placed and studied under the broader realm of consumer socialization (see Figure 1.1) (Shah and Mittal, 1997, p.56).

As one may observe, roots and vital elements of IGI lie within socialization theory. In this framework, socialization research conducted in the (1980s - 1990s) has shown that social groups which we belong can shape our beliefs, attitudes, and behaviors (e.g., Tajfel, 1982). As formerly stated by Aronson and Gullickson (1996), we are "*social animals*" and our behaviors are frequently influenced by others' behaviors that surround us (e.g., family members, peers, or different social groups). Among various social entities mentioned above, it is worth recalling that the family stands out particularly crucial as we engage in constant social interactions within family units in our daily lives, where we may influence each other in different and broad contexts. In this respect, John (1999) stated that these social interactions may lead to the transfer of consumption-related values, attitudes, and behaviors to some extent across family members, occasionally occurring from parents to children.

Meanwhile, it is also recognized that children can attempt to influence their parents, where they may help them in the adaptation of new "*consumer skills*", leading to reverse transfer of attitudes and behaviors, a process known as "*reverse socialization*" (i.e., reciprocal socialization, bidirectional influence) in the family environment (e.g., Ekstrom et al., 1987; Ekstrom, 1995; see also Ward, 1974). From this perspective, Shah and Mittal (1997, p.55)

plainly indicated that IGI can happen in two directions: forward or reverse. In the forward IGI, the direction of influence is from parents to children, whereas reverse IGI refers to children's influence on parents. Within the framework of IGI, most research has examined forward socialization, while little research attention has been paid to enhance our knowledge of the reverse socialization process of consumers. In this aspect, we aim to fill this gap, as will be later discussed in section 1.4.

In the literature, IGI had been found to have a comprehensive scope, and a wide variety of influences can be transferred from parents to children or children to parents over the years. By way of some examples from different domains, a pioneer and one of the first IGI work carried out by Hill and Foote (1970) addressed whether parent's ability or inability to reach their financial goals are directly transmitted from one generation to another. Another study conducted by Jennings et al. (2009) found that children are more likely to copy parents' behaviors in the adaptation of political orientations because of social learning theory (SLT)[3] (Bandura, 1977) and IG transmission. In the area of developmental psychology, Simons et al. (1991) examined the IG transfer of harsh parenting across multiple generations, and Amato (1996) explained the IG transmission process of parental divorce. Unlike these kinds of studies, we approach the concept of IGI from the perspective of environmental consumer psychology with an emphasis on the IG transfer of SCAs and SCBs, as proclaimed.

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[3] Bandura's (1977) SLT suggests that learning occurs through observing, imitating, and modeling others' (e.g., family, peers, etc.) attitudes and behaviors. We note that it has been widely used to study the IG transmission of environmentalism (e.g., Ando et al., 2015; Grønhøj and Thøgersen, 2017).

In the consumption domain, starting with the 1970s, consumer researchers have extensively studied family influence and IGI in various contexts such as adaptation of marketplace motivations and beliefs (e.g., Moore-Shay and Lutz, 1988; Carlson et al., 1994), shopping preferences (i.e., clothing choices) (Francis and Burns, 1992), brand preferences (e.g., Woodson et al., 1976; Moore-Shay and Lutz, 1988; Mandrik et al., 2005, 2018), brand equity (Moore et al., 2002), skepticism to advertising (Obermiller and Spangenberg, 2000), perceived risk (Arndt, 1972), innovativeness as consumer behavior (Cotte and Wood, 2004), deal proneness of consumers (Schindler et al., 2014), extent and moderating factors of IGI (e.g., Heckler et al., 1989; Mittal and Royne, 2010), transfer of pro-environmental orientations (e.g., transfer of values, attitudes, and behaviors) in the context of environmental psychology and social influence (e.g., Grønhøj, 2007; Grønhøj and Thøgersen, 2007, 2009, 2012, 2017; Goldsmith and Goldsmith, 2011; Matthies et al., 2012; Salazar et al., 2013; Ando et al., 2015; Matthies and Wallis, 2015), transfer of environmental consciousness (Nakamura, 2003), and overall environmental concern (Meeusen, 2014; Casaló and Escario, 2016), among others (see Table 1.1, next page).

As shown, Table 1.1 represents a summary of some pioneering studies on IG consumer and environmental research. As could be seen from Table 1.1, there is ample evidence regarding IGI on consumption values, attitudes, and behaviors with early IG consumer research; however, the generalizability of some of their findings is open to questioning and should be interpreted with some caution. By way of some examples from Table 1.1, Woodson et al. (1976) looked at the existence of IGI on purchasing auto insurance across father-son dyads. Their findings suggested that

Table 1.1. Summary of some pioneering studies on IGI in consumer behavior and environmental psychology

Author(s) and Year	Subjects	Study Domain(s)
Arndt (1972)	Parents and offsprings[4]	Risk perception and opinion leadership
Woodson et al. (1976)	F[5]-S[6]	Brand preferences
Moore-Shay and Lutz (1988)	M[7]-D[8]	Brand preferences and marketplace beliefs
Heckler et al. (1989)	Parents and offsprings	Extent and moderating factors of IGI
Francis and Burns (1992)	M-D	Shopping attitudes and preferences on clothing
Carlson et al. (1994)	M-D, M-S	Marketplace motivations, attitudes, and behaviors
Williams et al. (1999)	Elderlies and offsprings	IG decision making
Obermiller and Spangenberg (2000)	Parents and offsprings	Consumer skepticism to advertising
Moore et al. (2002)	M-D	Brand equity
Nakamura (2003)	M-D	Environmentally conscious behavior
Cotte and Wood (2004)	Parents and offsprings	Consumer innovativeness
Mandrik et al. (2005)	M-D	Brand preferences and consumption orientations
Grønhøj and Thøgersen (2007)	Two available representatives: A parent and an adolescent	Sustainable family socialization and transfer of pro-environmental orientations: Values, attitudes, and behaviors related to pro-environmental consumption
Grønhøj and Thøgersen (2009)		
Grønhøj and Thøgersen (2012)		
Matthies et al. (2012)		
Matthies and Wallis (2015)[9]		
Grønhøj and Thøgersen (2017)		
Mittal and Royne (2010)	Parents and offsprings	Modality and moderating factors of IGI
Meeusen (2014)	Parents and offsprings	Environmental concern
Casaló and Escario (2016)		
Ando et al. (2015)	Parents and offsprings	Pro-environmental behaviors: A cross-national examination
Mandrik et al. (2018)	M-D	Brand preferences: A cross-national examination

[4] Parents and offsprings refer to all available representatives who were participated in the research. It may include fathers, mothers, sons, and daughters.
[5] F: Fathers
[6] S: Sons
[7] M: Mothers
[8] D: Daughters
[9] Matthies and Wallis's (2015) work does not include any subjects since it solely reviews the related literature on "*family socialization and sustainable consumption.*"

there is 32% of the same brand choice agreement in dyads' purchasing decisions. Subsequently, Moore-Shay and Lutz (1988) surveyed forty-nine mother-daughter dyads to find a similarity on marketplace attitudes and behaviors, including items like brand preferences, brand loyalty, impulse purchasing decisions, and perceived value of the products. One of their results claimed 49% of IG agreement for brand preferences (i.e., for high visibility products) and 31% for products with low visibility. What is more, Francis and Burns (1992) studied seventy mother-daughter dyads and found significant results by showing how the consumer socialization process can affect their attitudes on the acquisition (i.e., choices) of clothing and overall clothing satisfaction.

Even though these early studies suggested the existence of IGI on consumption orientations of young adult offsprings, the acceptability of their findings was limited and principally suffered from one misconception, labeled as the "*simple agreement bias*" by Mandrik et al. (2005, p.815). As formerly discussed and criticized by Mandrik et al. (2005, p.815), basic standards of early IG consumer research were inappropriate while measuring actual effects of IGI because their IG similarity assumptions were solely based on simple agreement accuracy between dyads, where they reported the raw level of similarity and agreement in terms of percentages without providing a solid background or calculation method for the degree of an agreement. Correspondingly, early IG consumer research did not measure chance effects. That is, early works ignored the effects of other possible influences (e.g., market share, local customs, or individual choices) while determining IGI. This problem can be better explained with an example inspired by Mandrik et al. (2005, p.815). Consider the mother-daughter agreement on brand preferences in the category of toothpaste,

where available options are Colgate and two other unknown toothpaste brands. It is likely that regardless of IGI or parental influence, both members would choose the same brand: Colgate, thanks to its largest share and brand recognition in the market.

Thus, recognizing the shortcomings of early studies and seeing various practical and theoretical implications of IGI in the consumer behavior realm, researchers have started to pay close attention in order to develop new conceptual measurement techniques of IGI across dyads (see Moore et al., 2002; Mandrik et al., 2005). To overcome the methodological limitations of early IGI studies and to develop a countermeasure against the "*simple agreement bias*" mentioned above, Mandrik et al. (2005, p.822) proposed that "*nominal effects*" of randomly paired parent-child dyads shall be considered to measure the actual impact of IGI, introduced as the "*nominal dyad method.*" Basically, for given sample size, they constructed nominal mother-daughter dyads by taking real mother-daughter dyads. After administrating 250 statistically enough randomizations on daughters, they regrouped mothers with randomized daughters, where they obtained new sets of nominal mother-daughter dyads, which helped them to produce a stable nominal mean level of agreement (i.e., nominal similarity scores/effects). To show the true IG similarity across twenty product categories (i.e., brand preferences) between mothers and daughters, they performed mean comparisons with t-tests between real and nominal mother-daughter pairs. The statistically significant difference between real and nominal means proved the actual IGI among them. With this method, they were able to determine the extent of IGI more accurately by removing the "*chance effect*" with the help of "*nominal effects*" that occur from factors other than IG transmission. A summary of the nominal

dyad method is schematically presented in Figure 1.2. It is worth noting that this method is fully suitable for IG analysis of consumer attitudes and behaviors, especially for dyadic relationships.
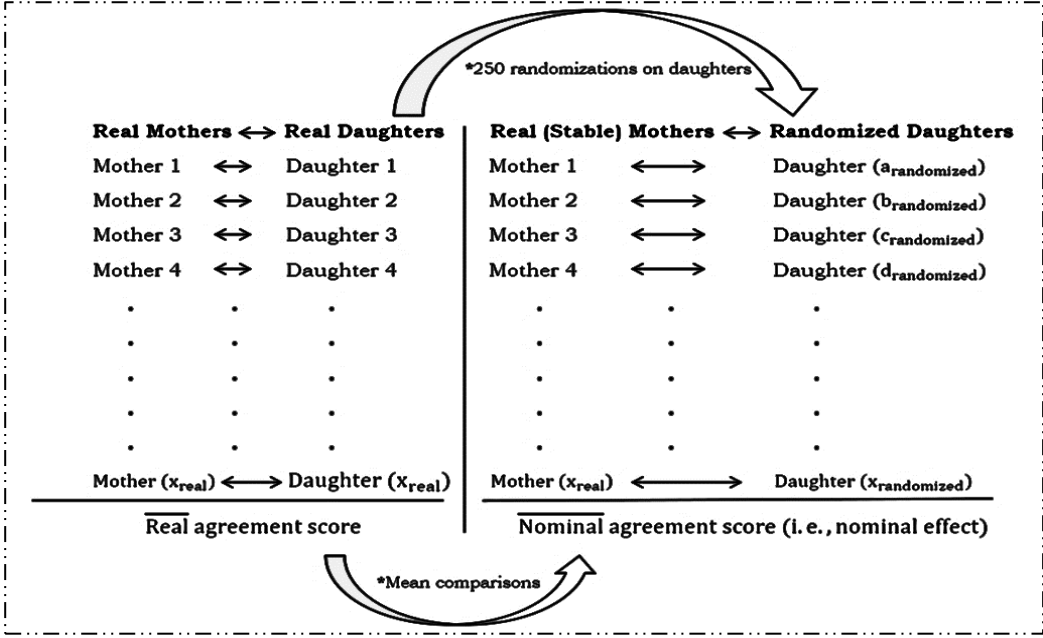
Figure 1.2. Nominal dyad method: Modified from Mandrik et al. (2005)[10]

As one recent implication of the nominal dyad method, Mandrik et al. (2018) conducted cross-national IG research to examine and compare the level of IGI across mothers and daughters in the United States and China, respectively. With the use of a parallel survey method, they studied IG similarities on brand preferences by setting parent-child communication (PCC) and PI as independent variables (IVs). After accounting for nominal effects for the sake of accuracy of the research, one of their findings has shown that mother-daughter dyads in the United States have

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[10] X_{real} = The number 'x' depends on the sample size of the study and varies accordingly.

$X_{randomized}$ = 250 randomizations are administrated on daughters to obtain a nominal mean randomization value for each daughter in the sample.

higher brand preference agreements than their Chinese counterparts. With the present study, in the same vein, we aim to utilize and employ the "*nominal dyad method*" to measure the real impact of IGI while extending IG research to the domain of sustainable consumption ultimately.

Theoretically, consumer researchers have sought to identify various factors that may affect the level of IGI either positively or negatively. For instance, parent-child communication (Moschis et al., 1984; Moschis and Moore, 1984; Moschis, 1985; Heckler et al., 1989; Mandrik et al., 2005, 2018), PI (Moschis and Churchill, 1978; Meyer and Anderson, 2000; Mandrik et al., 2005, 2018), socio-demographic variables, including age, gender, income (Moschis and Mitchell, 1986; Heckler et al., 1989), education, marital status (Heckler et al., 1989), and more others have classified as factors explicitly affecting the level of intergenerational influence in the context of consumption orientations. Among different factors explored, the two following factors are particularly significant and need special attention in the process of any intergenerational consumption research: PCC and PI. Thanks to previous research efforts, it is recognized that parent-child communication is the vital and pivotal element of the consumer socialization process, where it directly contributes to the learning and adaptation process of new consumption-related values, attitudes, and behaviors (e.g., Moschis and Churchill, 1978; Moschis and Moore, 1984; Moschis, 1985; Mandrik et al., 2005, 2018). To illustrate, Heckler et al. (1989) showed that the communication environment (i.e., family orientation) of children is significantly related to intergenerational similarity on the product and store choices.

On the other hand, peers are recognized as one of the leading influencer agents in the consumer socialization process, as previously expressed at the beginning of this section (e.g., Ward, 1974; John, 1999), so the peer influence is inevitably expected to affect offspring's consumption orientations. Though, only limited number of studies have looked at the effects of PI in the context of IGI (e.g., Moschis and Churchill, 1978; Meyer and Anderson, 2000; Mandrik et al., 2005, 2018); therefore, as previously suggested by John (1999, p.206), it is conceivable to say that IG consumer research examining the topic of PI is surprisingly scarce and deserves much more critical research attention.

In summary, detailed and essential introductory information on related topics (e.g., sustainability marketing, consumer socialization, intergenerational influence) of this study is provided in sections 1.2 and 1.3 separately. In section 1.4, we deliver information about gaps, objectives, and how the rest of this study is organized.

1.4.   Gaps, Objectives, and Organization of This Study

In section 1.3, we documented that the scope of IGI is far-reaching, and many forms of influence, including consumption values, attitudes, and behaviors can be transferred within the family. Recognizing the significant prior implications of IGI in the consumption domain, in this study, we attempt to understand how attitudes and behaviors related to sustainable consumption may be transferred within the family. Research focusing on the notion (i.e., emerging phenomenon) of sustainable consumer socialization and pro-environmental IGI is still in the infancy stage and mostly unknown. Although more detailed examination will be carried out

on gaps of literature studies in section 2.3, here in this section, we want to provide preliminary information about some crucial missing points in the research literature.

To the best of our knowledge, several studies have investigated the family influence in the transmission of pro-environmental orientations, values, attitudes, behaviors (Grønhøj, 2007; Grønhøj and Thøgersen, 2007, 2009, 2012, 2017; Matthies et al., 2012; Matthies and Wallis, 2015; Ando et al., 2015), environmental consciousness (Nakamura, 2003), and environmental concern (Meeusen, 2014; Casaló and Escario, 2016). Principally, these studies provide ample evidence that pro-environmental values, attitudes, and behaviors are transferred within the family and support the argument that family influence can be a powerful tool for promoting pro-environmental consumer socialization.

Nevertheless, broadly speaking, the nexus of IGI and overall consumption orientations are still under-researched and critically lacking in some aspects. In particular, we still know very little about pro-environmental IGI in the consumption domain. In the existing literature, IG transmission of sustainable consumption across the mother-daughter dyad, predominantly, in the context of Turkish culture and among Turkish consumers, is wholly unexplored. Hence, there is an urgent need for profound domestic consumer behavior research within the scope of IGI in order to understand how such IGI may effect consumers' sustainable consumption practices and under what factors the strength and direction of IGI may be altered.

Additionally, according to Viswanathan et al. (2000, p.407), most of the consumer socialization and IG research have focused

on finding IGI either on children or adolescents. On the contrary, little research efforts have been devoted to understanding IG effects over the later phases of life (i.e., on young adults; during the post-adolescence period). Therefore, it is vital to expand our understanding of what factors lie behind sustainable behaviors of young adults since this may provide useful implications for changeover towards a sustainable society and building up a sustainable future, as suggested by UNEP (2011, p.6). Subsequently, as previously and separately supported by Moore et al. (2002, p.18) and Mandrik et al. (2004, p.697), the degree and scope of IGI and factors influencing it are still not well established in the research literature. Crucially, although some research has shown the existence of intergenerational influence on sustainable consumer attitudes and behaviors, it has not been examined within the context of family communication, peer influence, and reverse intergenerational transfer using nominal dyads. Taking all these issues into account, more research efforts are required to reveal different IG influences across different members of a family and diverse age groups by adapting unique methodological, conceptual, and theoretical approaches.

With such literature gaps as motivation, we raise the following research question through the lens of IGI as our primary objective: How are mothers' SCAs and SCBs related to their daughters' SCAs and SCBs and vice versa? To answer this question and to provide a better understanding of social (family-related) factors conceivably affecting the development of sustainable consumption attitudes, habits, and practices, we look for empirical evidence for the existence of IGI on SCAs and SCBs between Turkish mother and college-age daughter dyads by utilizing following approaches: the co-orientational model introduced by Chaffee and McLeod (1968),

the parallel survey methodology (e.g., Moore-Shay and Lutz, 1988; Francis and Burns, 1992; Moore et al., 2002; Mandrik et al., 2005, 2018), the nominal dyad method (Mandrik et al., 2005), and self-reported measures which are adapted from reliable and validated measurement scales. To our knowledge, no studies in the emerging area of sustainable consumer socialization have previously used or adapted such methodological, conceptual, and theoretical approaches named above. By employing these approaches, we aim to fill this gap and identify the extent (i.e., degree) of IGI between mothers and daughters more accurately.

Moreover, in section 1.3, we touched briefly and recognized the significant effects of parent-child communication and peer influence in the IG transmission of overall consumption orientations. So far, as discussed, these two factors have almost received no attention in pro-environmental IG consumer research, so as our secondary objective, we further study PCC and PI as potential influencer factors in the IG transmission of SCAs and SCBs. Lastly, the tertiary objective of this study is to gain and build a better understanding of the following question: Who influences who in practicing sustainable consumption? Who is responsible for transmitting such attitudes and behaviors? By using the co-orientational model approach, we investigate whether the direction of IGI occurs from mothers to daughters (i.e., forward IGI) or daughters to mothers (i.e., reverse IGI). We also aim to partially confirm the co-orientational model findings by proposing a novel approach in which we statistically compare them with dyads' subjective knowledge on sustainable consumption.

In the following chapters of this study, related background information, concepts, literature findings, and limitations are

reviewed, respectively. Then, the research framework (i.e., model) and hypotheses are developed conceptually. Afterward, the method and measurement scales used to assess these hypotheses are examined one by one. Accordingly, the statistical results of the study, followed by a general discussion, possible implications, current research limitations, and future avenues with concludes are pointed out and delivered in a given sequence.

CHAPTER 2 LITERATURE REVIEW

2.1.　　Chapter Outline

This chapter is separated into two main sections and outlined as follows. In section 2.2, essential background information, definitions, frameworks, and discussions are provided for the following concepts: environmentally friendly consumerism, sustainable consumption (i.e., the decision-making process), sustainable products, sustainable consumer attitudes, sustainable consumer behaviors, potential identity of sustainable consumers and why they do or do not engage in sustainable consumer behaviors (e.g., the attitude-behavior gap). Notably, special attention is paid to investigating social factors that may influence sustainable consumption patterns. Following the existing literature, the objective of this section is to acquaint and inform the reader about the general terms of sustainable consumption and examine concepts and models that have potential influences on the development of sustainable consumption processes. In section 2.3, family studies and intergenerational research in the developing area of sustainable consumer socialization and in the domain of environmental consumer psychology are examined respectively. Individually, the relevance and importance of studying family socialization and IGI in the field of sustainable consumption are reviewed at the beginning. After that, essential contributions and shortcomings of relevant research are discussed and criticized, separately.

2.2.   Background of Sustainable Consumer Behaviors

"*T*here is no such thing as "away." When we throw anything away, it must go somewhere." – *Annie Leonard (2010)*

In the marketing literature, making a precise definition and classification of the consumption concept is not straightforward, but rather a comprehensive, debatable, and daunting task because consumption itself is a diverse process and often influenced by many inside and outside factors. On this subject, Peattie (2010, p.199) highlighted that the consumption process includes economic, social, and physical factors. In the process, individuals' psychology, circumstances, society infrastructure, nature, cultural, and political factors (e.g., laws, political affiliation) may play influential roles. In addition to this, research efforts that aim to identify and classify "*the consumer*," consumer values, attitudes, and behaviors generally confront difficulties in meeting a common perspective due to the versatile and changing nature of consumers. Therefore, identification of the sustainable consumption concept and classification of the sustainable consumer have become argumentative topics that are discussed in the literature more progressively. To define related concepts that we continuously use in this study and to outline different factors (particularly social ones) influencing sustainable consumption practices, we will attempt to review the relevant literature with its conceptual, theoretical, and methodological foundations from the marketing point of view.

2.2.1. Related Concepts and Meanings

Environmentally Friendly Consumerism. According to Alsmadi (2007, p.342), environmentally friendly consumerism was defined as "*pro-environmental consumer culture, which is characterized by a strong sense of environmental responsibility in consumption behavior.*" It is recognized that such consumer culture may focus on different consumption behaviors like recycling, energy-saving, reactions toward advertising, or product labeling (Peattie, 2010, p.197). Differently, Charter et al. (2006, p.10) explained the same phenomena as the utilization of individual consumer power in order to encourage environmentally-friendly consumption activities while fulfilling consumer needs and wants simultaneously. When past research is examined, it is evident that the rising megatrend of environmentally friendly consumerism has been described and specified under similar umbrella terms, including green consumerism (Charter et al., 2006; Moisander, 2007), socially conscious consumerism (Charter et al., 2006), green consumption (Gilg et al., 2005; Peattie, 2010), socially responsible consumption (Antil, 1984), environmentally friendly consumption (Halkier, 1999), ecological consumption (Fraj and Martinez, 2007), pro-environmental consumption (Welsch and Kühling, 2009), and sustainable consumption (Norwegian Ministry of the Environment, 1994; Tanner and Wölfing Kast, 2003; Jackson, 2005; Haas et al., 2005; Young et al., 2010).

In this study, among different available options, the two terms of "*sustainable*" and "*pro-environmental*" are used interchangeably in the consumption context. The reason behind is that compared to other terms such as "*green*", sustainable and pro-environmental represent more general thoughts and they often suggest a

fundamental change (i.e., shift) towards fair allocation of economic, social, and environmental resources in the paradigm of consumption, as supported by Kostadinova (2016, p.225).

Sustainable Consumption. As highlighted by Jackson and Michaelis (2003, p.4), sustainable consumption terminology first entered the policy agenda at the "*Rio Earth Summit*" in 1992. In the following decades, a wide range of institutional programs and initiatives on the concept of sustainable consumption were launched one after another. Accordingly, various opinions and definitions of this evolving concept have been expressed in the expanding literature, yet still, there is no global consensus on the precise meaning of sustainable consumption.

One of the most common and comprehensive definition of sustainable consumption was delivered by the United Nations in the 1994 & Oslo Symposium. It was stated as "*the use of products and services that respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations.*" (see Norwegian Ministry of the Environment, 1994). In the domain of sustainability, this broad definition not only focuses on individual consumption but also covers collective consumption and production activities carried out by social groups, enterprises, and organizations. Notably, it considers the concept of sustainable consumption as an umbrella term which brings several critical themes together to achieve sustainable development goals. As emphasized by the Norwegian Ministry of the Environment (1994), achieving these goals will ultimately

diminish environmental, social, and economic costs while consolidating the economic competition.

From another point of view, according to Haas et al. (2005, p. 7-8), sustainable consumption entails and contains "*measures*" that focus on reducing the harmful effects of consumer actions. These measures are intended to change the consumption patterns of consumers more sustainably. This suggests that we can talk about sustainable consumption when consumers use public transport to avoid traffic congestion, prefer cycling instead of driving or choose hybrid fuel-efficient vehicles as an alternative to gasoline ones or involve in cars and bikes-sharing activities. What is more, using dishwashers rather than hot waters, buying green products instead of conventional ones, or consuming less meat are also examples of such measures for the transition towards sustainable consumption. However, as suggested by Jackson (2005, p.19), it is worth stating that sustainable consumption is not only and necessarily about changing consumption patterns but often refers to "*consuming responsibly and less*" to live better and achieve more sustainable lifestyles.

At first glance, sustainable consumption may be regarded as a problematic and contradictory topic since it is often perceived as an oxymoron concept in past research. Indeed, according to Peattie (2010, p.197), it is a complex and diverse term because "*sustainable*" (i.e., green) often refers to the preservation of environmental resources, whereas "*consumption*" implies the destruction of them. After seeing and acknowledging different interpretations of sustainable consumption in the marketing literature, we similarly define it as a theoretical concept that emerges in response to the growing concern about the harmful

environmental and social consequences of individual and mass consumption as well as the high level of economic growth. We also perceive it as a strategic and context-dependent term that covers economic, environmental, and social welfare characteristics of related services and products. Our view of sustainable consumption suggests that this phenomenon should not only be examined at an individual level but also needs to cover larger systems (e.g., social systems) and multi-levels since it is an evolving subject and may naturally be influenced by many outside forces.

Sustainable Consumption Process. How do consumers make decisions related to sustainable consumption? Which stages are passed in the process of sustainable consumption? At which stages may the family influence particularly arise? Similar to the general consumer decision-making process, Belz and Peattie (2013, p.83-86) explained the decision-making process of sustainable consumption as represented in Figure 2.1, next page.

From Figure 2.1, it is visible that potential consumers are becoming aware of their needs and wants at the first stage of this process. Belz and Peattie (2013, p.83) noted that needs could either be basic (i.e., fundamental) needs such as food, shelter, and clothing or social needs such as status and self-fulfillment. Based on consumers' lifestyle, nature, and society, these needs are translated into specific wants. In this regard, Peattie (2010, p.200) notes that marketers are mainly responsible for translating such specific wants into a demand for sustainable products, but they are not alone in this process. In the sustainable consumption context, we argue that family members can also be influential in this transition (i.e., needs → wants → demand) process. We use

this basic model (see Figure 2.1) as a framework for explicating the possible influence of family on individuals' sustainable consumption decisions.

Recognition of want or need

Emphasis on needs and welfare over wants, and on balance with noneconomic wants and needs

Information search and alternative evaluation

Nonpurchase solutions may be sought (rent/borrow); sustainability costs, benefits and alternatives considered

Purchase (or alternative activity)

May choose sustainability solution and/or channel; or rent instead of buy; or defer purchase

Use of solution/consumption of product

Efficient use of product; maintenance and upgrading prolong product life span

Post-use behaviour

Reselling, reusing, remanufacture, recycling strategies all used to minimize waste to landfill

Figure 2.1. A model on stages of the sustainable consumption process: Modified from Belz and Peattie (2013, p.97)

Next, consumers start to gain knowledge and search for information about sustainable products and services from distinctive sources (e.g., family, peers, and commercial sources like ads), as highlighted by Belz and Peattie (2013, p.84). Besides impulse consumption decisions that are given independently, it seems that effects of family influence will start to be more apparent

at this stage because the literature suggests that consumers often get opinions of family members while gathering information and evaluating alternatives for sustainable products and services (e.g., Grønhøj, 2007; Grønhøj and Thøgersen, 2009; Salazar et al., 2013), so it is plausible to say that such family interactions may help consumers to build trust and decrease skepticism towards sustainable consumption or may work in reverse direction.

After searching for information from different sources, consumers evaluate alternatives based on taking sustainability-related benefits and costs into account, as specified in Figure 2.1. During this stage, those who are heavily oriented towards sustainable consumption may differentiate and favor sustainable goods and services over conventional ones. It is also reasonable to state that family members may help individuals to choose through alternative options at this phase.

After evaluating alternatives and giving decisions about what products and services to buy, the purchasing stage begins. Peattie (2010, p.201) underlined that every purchasing (i.e., shopping) activity and method that consumers choose might generate different social and environmental impacts. For example, Hogg and Jackson (2009, p.141-143) showed that purchasing online musics have lower material impacts and different sets of environmental outcomes from purchasing a physical compact disc (CD). The purchasing stage is followed by the use and post-use stages. In this respect, Peattie (2010, p.201) indicated that total generated environmental impacts are mostly dependant on how consumers use products and services. As previously shown in Figure 2.1, efficient usage of products and services may extend the life cycle of them and can contribute towards sustainability.

After the usage, sustainably oriented consumers are mainly expected to involve in recycling and re-use activities at the disposal (i.e., post-use) stage. It is worth mentioning that interest in the post-use stage increases as consumers play more critical roles in determining the sustainability impacts of products and services. However, the post-use behaviors of consumers are still interestingly neglected by mainstream marketing efforts (Belz and Peattie, 2013, p.86). In this stage, family influence is also documented in the research literature. By way of an example, Matthies et al. (2012) reported a significant relationship between recycling and re-use behaviors of parents and their children. Undeniably, it is observable that harmful environmental and social impacts of the consumer society have become visible over the past few decades. For that reason, consumer attitudes and behaviors have gradually begun to be influenced by various factors in each stage of the sustainable consumption process. As one prospective factor, it is almost inevitable not to talk about family influence in the process.

Sustainable Products. Briefly, what are sustainable products that play essential roles in the sustainable consumption process? When can a product be called sustainable? In the research literature, similar terms, including ecological products (e.g., Gurâu and Ranchhod, 2005), green products (e.g., Shamdasani et al., 1993; Peattie, 1995; Alsmadi, 2007; Dangelico and Pontrandolfo, 2010; Durif et al., 2010), and environmentally friendly products (e.g., Haws et al., 2014; Johnstone and Tan, 2015) are used to describe the same notion – sustainable products. According to Peattie (1995, p.181), a product is called *sustainable (i.e., green)* when its social and environmental impacts are minimized during

production, use, and disposal phases compared to conventional products or other competitive offerings. As highlighted by this definition, it is important to obtain environmental and societal benefits as well as improved performance over the whole life cycle of a product (i.e., extraction → use → disposal) in order to label it as sustainable.

Similarly, another comprehensive definition of a sustainable product was given by Durif et al. (2010, p.31) after evaluating thirty-five different academic definitions and codifications of the same phenomena. Accordingly, they defined it as a product that uses environmentally-friendly resources and materials (e.g., "recycled, *renewable, toxic-free, biodegradable*") in its "*design, attributes, production, and strategy*" phases to lessen negative environmental and social impacts over its entire life cycle. Some good examples of sustainable products are environmentally friendly white goods, bioplastics, solar cells, hybrid cars, energy-efficient light bulbs, ethically and clothing products made from sustainably sourced fibres.

Sustainable Consumer Attitudes and Behaviors. It is fair to say that understanding consumer attitudes and behaviors is at the center of any marketing activity. Peattie (2010, p.195) pointed out that consumer values[11], attitudes, norms, behaviors, and habits are incredibly influential and determinant in the sustainable consumption process. On top of that, Belz and Peattie (2013,

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[11] Pinto et al. (2011, p.123) viewed values as unique sets of beliefs that cause "*behaviors and judgments.*" Schwartz (1992) regarded them as beliefs and contexts that will ultimately lead to desirable end states. Consistent with these two definitions, we label SCVs as consumers' perceptions towards environmental issues and tendency to express their perceptions by setting SCAs and engaging in SCBs respectively. Fundamentally and dominantly, a substantial amount of research reported altruistic and materialistic values of consumers as significant determinants of pro-environmental behaviors in the consumer behavior literature (e.g., Stern et al., 1993; Karp, 1996; Hurst et al., 2013; Bakırtaş et al., 2014).

p.105) further suggested that examining consumer lifestyles, attitudes, and behaviors from the perspective of sustainability are vital for a holistic understanding of the total consumption process. Thus, putting aside the arguments related to the meaning of sustainable consumption, the decision-making process, and sustainable products, we now focus on conceptualizing SCAs and SCBs correspondingly since they are a central theme and starting point of this study.

Initially, the attitude was defined by Fishbein and Ajzen (1975, p.6) as "*a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object.*" From the marketing perspective, Perner (2010) defined consumer attitudes as a cluster of three essential components, which are "*beliefs, feelings, and behavioral intentions (i.e., tendencies) of consumers*" toward people, objects, and events. Unquestionably and expectedly, consumers establish attitudes toward the environment and sustainability since they are well aware and conscious about social and environmental issues nowadays (e.g., Chen, 2008, p.532; Chen and Chang, 2013, p.489). Hence, in line with definitions discussed above, we describe SCAs as the composition (i.e., set) of consumers' beliefs, feelings (e.g., emotions), desires, and intentions toward pro-environmental consumption activities as well as their tendency to respond in favorable and unfavorable ways with regards to such activities.

On a separate note, what are SCBs? To answer this question, we first need to conceptualize the consumer behavior term. Kardes et al. (2011) pointed out that consumer behavior is observable in all sorts of activities that are connected to "*purchase, use, and disposal of goods and services.*" It involves and entails "*emotional,*

mental, and behavioral responses (i.e., reactions) of consumers" to these activities. Given this information, Alsmadi (2007, p.342) considered SCBs as the adaptation of consumer behavior patterns, which does not damage the environment. Luchs and Mooradian (2012, p.129) viewed and treated it as "*consumer behaviors that are often influenced by concern for environmental and social issues.*"

To better understand different behaviors of consumers toward sustainability, UNEP (2002) offered an extensive categorization of SCBs according to the basic life functions of people (e.g., nutrition, housing, education, clothing, mobility, leisure, and health). Within this context, a large amount of research attention has been paid to understanding various SCBs such as energy-saving (i.e., curtailing) and water-saving behaviors (e.g., Gadenne et al., 2011; Gilg and Barr, 2006), recycling, re-use, and waste reduction behaviors (e.g., Biswas et al., 2000; Park and Ha, 2014), green buying behaviors and sustainable food consumption (e.g., Moser, 2015; Vermeir and Verbeke, 2006), sustainable dieting behaviors (e.g., Werner et al., 2019), ethical fashion and eco clothing consumption behaviors (e.g., Lundblad and Davies, 2016; Niinimäki, 2010), fair trade (i.e., ethics) behaviors (e.g., De Pelsmacker et al., 2005), donation and sustainable giving behaviors (i.e., voluntary behaviors) (e.g., Ha-Brookshire and Hodges, 2009), sustainable tourism and tourist behaviors (e.g., Budeanu, 2007), sustainable mobility and transportation behaviors (e.g., Hartl et al., 2018). Indeed, as can be seen above, SCBs have a broad scope, and they consist of a wide range of behaviors that consumers may potentially involve in almost all areas of life.

Kotler and Keller (2011) highlighted that attitudes of consumers are formed or may be changed through learning and experiences, and they often influence consumer behaviors. In the sustainable consumption context, research typically indicates a significant link (i.e., relationship) between attitudes and behaviors, where SCAs crucially determine, influence and explain SCBs (e.g., Tanner and Wölfing Kast, 2003; Barr et al., 2005; Arslan et al., 2012). Nevertheless, contradictory results and inconsistencies between SCAs and SCBs were also reported commonly. In the following parts of this section, we will elaborate on them under the minor trophy of "*attitude-behavior gap.*"

Sustainable Consumers and The Attitude-Behavior Gap. In the consumption context, who is called as a sustainable consumer? What do we really know about them? Despite a great deal of research interest and efforts, there is neither a straight answer nor a consensus for these questions in the research literature. It appears that the changing nature of consumers makes it hard to pin down the direct potential identity of a sustainable consumer. For instance, Belz and Peattie (2013, p.98) stated that depending on different consumption categories, various contexts, and stages, consumers' willingness to take part in sustainable consumption practices may differ widely. Likewise, Rettie et al. (2012, p.423) noted that consumers may only embrace some specific sustainable behaviors that suit them and reject others, which are not suitable for them. Hence, it is conceivable to say that sustainable consumer identity is subject to many changes and often influenced by various factors.

In this study, we view the potential identity of a sustainable consumer as one (e.g., a person, families, households or a

community) who adopt(s) sustainability-oriented values, attitudes, and behaviors (e.g., recycling, green purchasing, etc.) and embraces a sustainable lifestyle regularly. In this definition, we do not only consider consumers as individuals but also see them as collective units (e.g., families, households, or communities). In line with the views of Peattie (2010, p.219) and Belz and Peattie (2013, p.101), we recognize that the development of sustainable consumption patterns may require more collective consumption behaviors and consumers can respond to such issues (e.g., pro-environmental consumption activities) as collective decision units while involving in collaborative consumption practices. Nevertheless, we still acknowledge that it is neither correct nor helpful to classify people directly as sustainable consumers before understanding all aspects of the entire consumption process and factors inside of it, so understanding the attitude-behavior gap and examining different factors influencing SCBs may help one to create a better and more meaningful profile of the sustainable consumer.

Continuing with the attitude-behavior gap, literature studies often report a discrepancy (i.e., a mismatch) between SCAs and SCBs (e.g., Vermeir and Verbeke, 2006; Gupta and Ogden, 2009; Young et al., 2010) as discussed previously. These cited studies provide ample evidence that the link between attitudes and behaviors is under stress when it comes to sustainable consumption. That is, even though consumers have a growing interest in embracing attitudes related to sustainable consumption, they frequently have difficulty translating their attitudes into actual market behaviors at the checkout counter. To illustrate, one study conducted by UNEP (2005, p.15) claims that among 40% of consumers who report their interest in buying

sustainable products, only 4% of them actually engage in purchasing behaviors. This finding suggests that consumers over-report their pro-environmental attitudes or may imply that their attitudes are inconsistent with their behaviors, such that some obstacles exist which prevent them from following through their attitudes. Therefore, such inconsistencies between attitudes and behaviors are most often studied under the heading of the attitude-behavior gap (i.e., the value-action gap) in the research literature.

According to Peattie (2010, p.213) and Belz and Peattie (2013, p.100), personal factors (e.g., consumer skepticism, habits, lifestyles), situational factors (e.g., financial constraints, uncertainties on new products, brand loyalties), social factors (e.g., weak social norms (i.e., subjective norms), and social desirability bias) may provide possible explanations for this gap. Subsequently, we argue that examining social factors, particularly family-related ones, influencing sustainable consumption patterns can possibly give us clues and provide new insights to understand mismatches between attitudes and behaviors in the domain of sustainable consumption.

2.2.2. Social Factors Influencing SCBs

A vast amount of research studies has been conducted to identify potential drivers and determinants of SCBs. In this part, we attempt to divide them into three categories (see Figure 2.2). Based on reviewing different literature studies on sustainable consumption area (see Gilg et al., 2005; Vermeir and Verbeke, 2006; Carrington et al., 2010; McCright and Dunlap, 2011; Wang et al., 2014; Terlau and Hirsch, 2015; Kostadinova, 2016), Figure 2.2 was created in an attempt to provide a fresh combined

perspective into factors influencing SCBs. From Figure 2.2, various individual-related, situational/contextual, and social factors were identified to be influential in the process. It is worth stating that some of these individual factors are shaped in childhood through IGI. The figure also gives a clue about the direction of the decision-making process of sustainable consumption (i.e., beliefs → attitudes → intentions → behaviors). Among these three categories, we will attempt to shed light on social factors and show how they can promote pro-environmental consumer behaviors in the following.
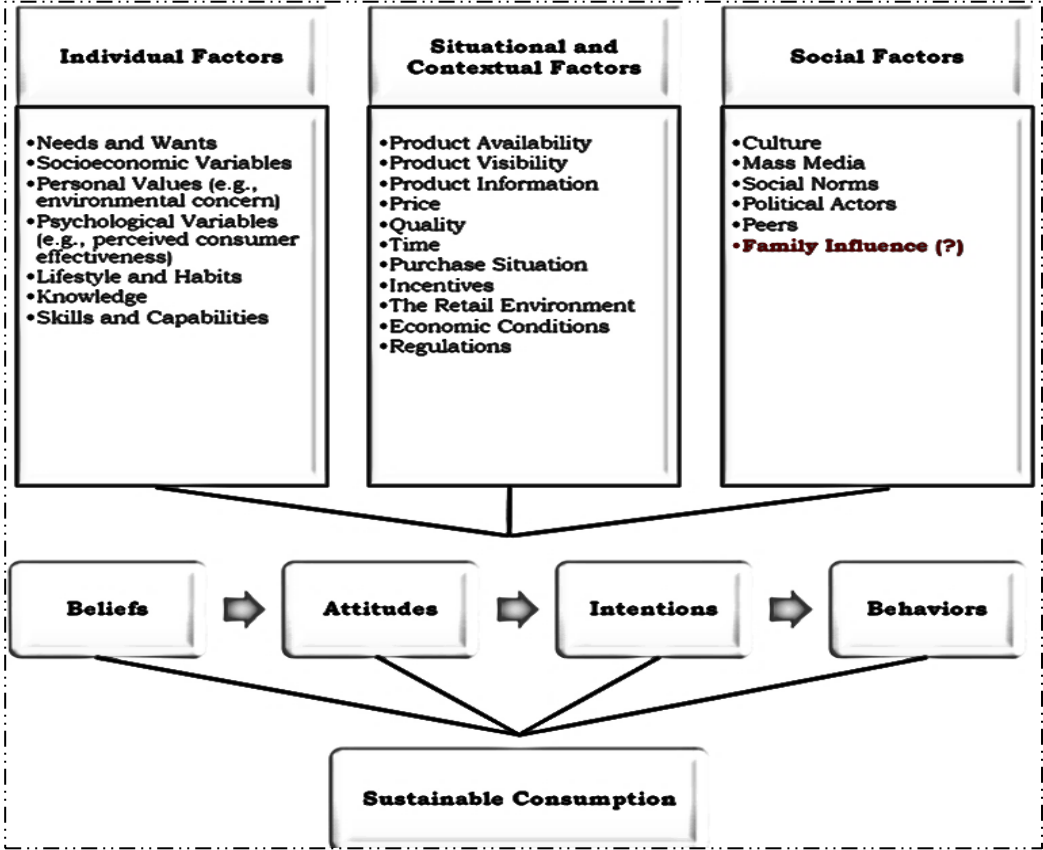
Figure 2.2. Factors influencing sustainable consumer behaviors: Created based on (Gilg et al., 2005; Vermeir and Verbeke, 2006; Carrington et al., 2010; McCright and Dunlap, 2011; Wang et al., 2014; Terlau and Hirsch, 2015; Kostadinova, 2016)

In line with the SLT view discussed as a footnote in section 1.3, Bandura (1977) highlights that we are continually being influenced by others (e.g., individuals, various social groups) that are active in our social environment. Likewise, Rashotte (2007, p.1) supports that our attitudes and behaviors are profoundly affected by others' feelings, thoughts, and actions by means of social interactions, a process known as social influence. Given this information, it is plausible to state that consumers do not generally act independently while giving consumption decisions except in some cases, so in the domain of social influence, would somebody be more interested in engaging sustainable consumption practices if they knew that all other family members and their friends were doing it?

Figure 2.2 offers a potential answer for this query indicating that various social factors, including culture – specifically cultural values (e.g., Sheng et al., 2019), mass media – newspapers, TV, radio, etc. (e.g., Michaelis, 2001; Haron et al., 2005), social norms – morally right and socially approved appropriate behaviors (e.g., Harland et al., 1999; Peattie, 2010, p.211; Dowd and Burke, 2013; Jachimowicz et al., 2018), political actors[12] (e.g., McCright and Dunlap, 2011; Brulle et al., 2012), peers, and family [13] (e.g.,

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[12] In two former research, political groups were found to be a significant determinant of pro-environmental behaviors. Interestingly, attitudes and behaviors toward climate change have been politicized and criticized. Correspondingly, it was plainly revealed that compared to democrats and liberals, republicans and conservatives were less likely to show concern towards global warming and climate change issues since they often hold weaker attitudes and behaviors about climate science – (a.k.a., scientific facts) (see McCright and Dunlap, 2011; Brulle et al., 2012 for further discussion).

[13] Salazar's et al. (2013) study is a compelling example of peer and family influence on the development of sustainable consumption patterns. Unlike big majority of existing sustainable consumption studies that apply survey methodology in their research, Salazar et al. (2013) differently utilized experimental setups to show influences of peer groups (i.e., friends, colleagues), and family on buying sustainably sourced products. In their study, one hundred and thirty-five participants were recruited from a higher education institution located in Netherlands. To measure some control and treatment variables, participants were allocated to three different groups. Then, they were trained and asked to play a product "*matching and choosing game*" with a given limited budget. While playing the game, participants in group 1 were not provided with any outside information (e.g., choices of peers and family members); whereas participants in group 2 and 3 were received information regarding choices and evaluations of their peers and family members on such

Salazar et al., 2013) are influential in the decision making process of sustainable consumption. Unquestionably, these and other available studies cited above provide ample theoretical and empirical evidence supporting the statement that social influence is a powerful tool in promoting and developing sustainable consumption patterns.

Compared to other individual and situational/contextual factors, Salazar et al. (2013, p.173) emphasized that influences of two social actors, that is, peers and family on adapting sustainable consumption patterns have mostly neglected and lacking in many aspects, where more empirical and theoretical research efforts are required to promote pro-environmental consumption behaviors at the family (i.e., household) level in the consumer behavior literature. Consequently, as a general domain of inquiry, we focus on the roles of family influence and PI among various facets of social influence as important factors potentially influencing sustainable consumption patterns. The emerging literature of pro-environmental IGI is visited in the following section with the main aim of conceptualizing family influence as a social factor shaping the development of pro-environmental consumer attitudes, habits, and practices.

2.3.   Pro-Environmental Intergenerational Research

"*Buy less, choose well; make it last.*" – *Vivienne Westwood (2014)*

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products respectively. Results of the study showed that group 2 and 3 who were exposed to information about related products from their peers and family members behaved significantly different, $p<0.01$ than others (i.e., group 1) who did not receive any information. It was further found that information received from peers and family members were 4.46 times more effective than other sources like ad campaigns on the process of becoming acquainted with sustainable products. Lastly, gender differences were noted. Compared to males, females seemed to pay more attention to social information which they received from their peers and family.

As consumers, how do we develop specific routines or attitudes that may trigger and affect our sustainable consumption practices? More specifically, what is the role of the family in the development of such routines and attitudes? How are the concepts of family socialization and sustainable consumption related to each other? Can the family be a point of departure for the sustainable consumer socialization? To answer such questions in detail, we will review the related literature in this section.

Firstly, the literature review indicates that a vast amount of research linked to the field of sustainable consumption generally focuses on three different categories of consumption. According to Peattie (2010, p.195), these categories are "*housing*" (e.g., management of households: land usage, energy, and water consumption), "*transportation behaviors*" (e.g., leisure, work, and travel activities), and "*food choices*" with particular attention to meat consumption (e.g., Tukker et al., 2011) respectively. In this aspect, Tukker and Jansen (2006, p.159) stated that these three categories represent more than 70% of the ecological impacts in total. Due to the environmental impacts of such consumption categories, it is not surprising that most of the previous research efforts are concentrated in these areas.

However, among these categories, taking a closer look at the devastating impacts of household (i.e., family) consumption activities on the environment is particularly vital. For instance, by studying a database that includes forty-three countries, Ivanova et al. (2016, p.526) showed that consumption activities carried out by households negatively contribute to the "*land*," "*material*," and "*water*" usage around 50% to 80%. Hence, to understand the negative environmental impacts of households, their behaviors for

consumption shall be examined at an individual level. From this perspective, individual household consumption is classified as a significant domain that directly determines the achievability of sustainable consumption, as stated by Rijnhout and Lorek (2012) in their sustainable lifestyles' roadmap report for 2050. Therefore, all three consumption categories reported above naturally include each family member living in a household and may influence their daily lives by taking parts in everyday family consumption practices, so as supported by Matthies and Wallis (2015, p.268), it is plausible, relevant and essential to examine the interactions and socialization of the family in terms of sustainable consumption. In other words, studying and understanding how families make consumption decisions by influencing each other is a justifiably important topic since it may help in reducing the negative impacts of unsustainable consumption activities on the environment.

To study the relationship between family socialization and sustainable consumption, we will review the related literature on pro-environmental IGI and the area of sustainable (i.e., green, environmental) consumer socialization, which emerged under the broader pictures and literature of environmental psychology, and environmental education. Since the beginning of the 2000s, researchers in environmental psychology, environmental education, and consumer behavior have studied the possible effects of family members and generations on each other in the acquisition of overall pro-environmental values, attitudes, and behaviors, where they have seen the family as a potential pro-environmental (i.e., sustainable) socialization agent (Nakamura, 2003; Grønhøj, 2007; Grønhøj and Thøgersen, 2009, 2012, 2017; Matthies et al., 2012; Meeusen, 2014; Matthies and Wallis, 2015; Ando et al., 2015; Casaló and Escario, 2016). Thanks to these

research efforts, we better understood the IG transmission of environmentalism and various mechanisms behind consumption patterns transferred within households. In the area, it is not surprising that the vast majority of studies are mainly concentrated in Western countries because, in such developed cultures, environmental protection and resource preservations have been significant social and political topics over forty years, as stated by Matthies et al. (2012, p.277).

Principally and shortly, studies cited above have initially pioneered the emergence of the literature on pro-environmental IGI and sustainable consumer socialization in which each of them has adapted several methodological, theoretical, and statistical approaches to work on these emerging subjects (see Table 2.1, next pages). To the best of our knowledge, Table 2.1 summarizes all pioneering literature studies on pro-environmental IGI and sustainable consumer socialization. Through Table 2.1, we provide prior general background information and acquaint the reader with relevant literature studies. Later, we will take a closer examination and discuss the findings of each study listed in Table 2.1 separately.

In the following parts of this section, the contributions of each study will be reviewed accordingly. This will help us to give a closer look at the general state of pro-environmental IG research and justify the family as an environmental socialization agent. As one may observe, literature studies in Table 2.1 can be divided into two main groups[14] and examined, respectively. Studies in the first group focus on the IG transmission of specific pro-environmental

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[14] Group 1: Research that focuses on IG transmission of specific pro-environmental values, attitudes, and behaviors such as environmental concern and environmental consciousness.

Table 2.1. Detailed review of the pro-environmental research on family socialization and IGI

Overview of Previous Literature Studies on Pro-environmental Intergenerational Influences

	Study Groups, Author(s) and Year	Subjects and Sample Size	Age Group of Offsprings	Study Domain(s)	Methodological, Theoretical, and Statistical Approach(es)
Group 1	Nakamura (2003)	273 Japanese families: Mothers and their offsprings	Majority of participants were at high school age	IGI on environmental consciousness and thirteen pro-environmental behaviors	Conducted statistical tests (e.g., multiple and logistic regression analyses), and applied survey methodology
Group 2	Grønhøj (2007)	175 Danish offsprings	16-22 years old	Exploration of sustainable (i.e., green, environmental) consumer socialization process	Adapted a qualitative research approach: Essay writing method
Group 2	Grønhøj and Thøgersen (2009)	601 Danish families: Two available representatives from each family: A parent and an adolescent	16-18 years old	IG transfer of environmental values, attitudes, and behaviors by focusing on three specific household consumption practices	Adapted Schwartz (1994): Theory of ten universal values, conducted statistical tests (e.g., multivariate testing), and an online survey
Group 2	Grønhøj and Thøgersen (2012)	601 Danish families: Two available representatives from each family: A parent and an adolescent	16-18 years old	IG transfer of three pro-environmental consumption behaviors: Special focus on family norms and personal attitudes	Adapted CST (e.g., Ward, 1974; John, 1999), SNT, conducted statistical tests (e.g., SEM, CFA), and an online survey
Group 1	Matthies et al. (2012)	206 German families: Parent-child dyads	8-10 years old	IG transfer of re-use and recycling behaviors: Roles of norms and behaviors of parents	Adapted NAT (Schwartz, 1977), conducted statistical tests (e.g., SEM, CFA), and self-administrated surveys
Group 1	Meeusen (2014)	2085 Belgian families: Parents and offsprings[15]	15 years old	IG transfer of environmental concern: Roles of family communication and gender differences	Conducted statistical tests (e.g., chi-square difference test (i.e., model fit) and SEM) and self-administrated surveys by using available data from PCSS (2012)
Group 2	Matthies and Wallis (2015)	Not applicable	Not applicable	Literature overview of "*family socialization and sustainable consumption*"	Proposed a dual view model for studying the family transfer of sustainable consumption practices
Group 1	Ando et al. (2015)	221 German and 365 Japanese families: Parent-child pairs	Germany: $\overline{9.6}$ years; Japan: $\overline{9.4}$ years	A cross-cultural study on IG transmission of pro-environmental behaviors: Investigating the role of cultural differences	Adapted TPB (Ajzen, 1985, 1991), SLT (Bandura, 1977), conducted statistical tests (e.g., SEM), and used survey methodology
Group 1	Casaló and Escario (2016)	95,008 families from sixteen different countries: Parents and offsprings	15 years old in all countries	IG transmission of environmental concern: The role of gender differences	Adapted gender schema theory (Bem, 1985), conducted a multivariate regression analysis, and data retrieved from PISA surveys (2006)
Group 2	Grønhøj and Thøgersen (2017)	448 Danish families: Two available representatives from each family: A parent and an adolescent	18-20 years old	The role of parenting style in the IG transmission of three pro-environmental consumption behaviors	Adapted SDT (Deci and Ryan, 1985), SLT (Bandura, 1977), conducted statistical tests (e.g., SEM, CFA, t-tests, PCA), and an online survey

Group 2: Research that deals with the existence of IGI on sustainable consumer beliefs, attitudes, and behaviors.

[15] Parents and offspring refer to all available representatives who were participated in the research. It may include fathers, mothers, sons, and daughters.

values, attitudes, and behaviors such as environmental concern, environmental consciousness, and recycling behaviors (Nakamura, 2003; Matthies et al., 2012; Meeusen, 2014; Ando et al., 2015; Casaló and Escario, 2016). Although these studies are closely related to sustainability and family socialization, understanding the IG transfer of sustainable consumer behavior is not their first priority. Instead, these studies helped us to comprehend that the family acts as a sustainable socialization agent in the development and transfer of sustainability-related values, attitudes, and behaviors, where they have created a baseline for future pro-environmental IG consumer research. Differently, studies in the second group directly deal with IGI on sustainable consumer beliefs, attitudes, and behaviors (Grønhøj, 2007; Grønhøj and Thøgersen, 2009, 2012, 2017; Matthies and Wallis, 2015). Thus, the combined interdisciplinary literature review will demonstrate that findings of studies from both groups have something to offer and can contribute to the development of each other.

Starting with studies in the first group, Nakamura (2003) focused on the IG transmission of environmental consciousness using survey methodology and measuring thirteen pro-environmental behaviors. Within the scope of family socialization, this IG research was conducted on two hundred and seventy-three Japanese mothers and their children. Even though most children were high school age, the sample of the study also included a small number of participants who were young adults (e.g., university students). The results of the study principally showed that the mother's environmental consciousness level was significantly related to the child's environmental consciousness. Moreover, it was found that mothers had significant and effective influences on their children in practicing ten pro-environmental behaviors.

Based on various statistical analyses (e.g., multiple, and logistic regression analyses), it was reported that the extent of the influence was greater when mothers requested from their children to engage in specific behaviors. Summarily, this study was one of the early domestic (i.e., country specific) IG research which investigated the transmission of specific pro-environmental behaviors within the family.

Another domestic IG research conducted by Matthies et al. (2012) examined IGI on two specific pro-environmental behaviors that are recycling and re-use of papers. Based on self-administered questionnaires, two hundred and six parent-child pairs were surveyed with data gathered from different primary schools located in Cologne, Germany. By utilizing norm activation theory (NAT) (Schwartz, 1977) and testing the data with confirmatory factor analysis (CFA) and structural equation modeling (SEM), they demonstrated that parents exert significant roles in the development of pro-environmental behaviors and norms of their children. Chiefly, findings of the study pointed out that sanction behaviors of parents (i.e., family norms) are the most critical factor determining recycling behaviors of children, whereas paper re-use behaviors of children were mostly influenced by parental communication. In the study, it was also noted that the IG transmission strength (i.e., effect sizes) might differ depending on where the consumption behavior (i.e., act) is performed (e.g., household, school environment or workplace). Recognizing the significance of this finding, in our study, we consider potential influences of peers as outsiders (i.e., others) at the college environment since they may alter the IG transmission strength. It is conceivable to say that college students who live outside of the home for some years and distant from the family environment may

be higher subject to such outside influences in the development of SCAs and SCBs. Please refer to section 3.5 for further discussion.

In a later study, Meeusen (2014) examined a postmaterialist attitude and antecedent called environmental concern, and how it can be transferred within family members. As potential influencer factors, roles of family communication and gender differences were investigated in the study. By using available data from the "*Parent-child Socialization Study (PCSS),*" the study focused on two thousand and eighty-five Belgian parents and their fifteen years old children. The results of the study confirmed the IG transmission of environmental concern, yet effect sizes were at a moderate level ($\beta_{\text{mother-child}}$ = .20, p<.01; $\beta_{\text{father-child}}$ = .16, p<.01). This increases the likelihood that other socialization agents (e.g., "*media, peers, and school*") may have effects in the transfer of environmental concern. Besides, findings revealed that regular family communication patterns (FCPs) increased the effectiveness of transmission, whereas, surprisingly, gender-specific differences were not noted. Given that environmental concern is expected to affect "*environmentally friendly (i.e., conscious) consumer behaviors*" in the literature (e.g., Minton and Rose, 1997; Roberts and Bacon, 1997), this study originally opens the gate for further investigations into IG transmission of pro-environmental consumer attitudes and behaviors.

Moreover, the importance of the family in the transmission of pro-environmental behaviors is also documented and confirmed by cross-national studies. In this respect, Ando et al. (2015) simultaneously surveyed 221 German and 365 Japanese families – parent-child pairs to examine the IG transmission of different pro-environmental behaviors such as waste disposal behavior. By

employing SLT (Bandura, 1977), results of the study showed that pro-environmental behaviors of parents had a direct influence on children's behaviors. In accordance with the foundational concepts of the Theory of Planned Behavior (TPB)[16] (Ajzen, 1985; Ajzen, 1991), it was further reported that parents may influence "*subjective norms*" of their children by acting as role models in environmental issues. Subsequently, it was revealed that young offspring frequently observe their parents' sustainable behaviors and learn from them when they do not have an "*innate idea or knowledge*" on environmental issues. Remarkably and additionally, cultural norms and cultural differences were found to be important determinants for the pro-environmental IG transmission process. This suggests that culture is a significant influencer factor that should not be neglected in any IG transfer process.

At the macro scale, Casaló and Escario (2016) conducted another cross-national research, where they re-visited the IG transmission of environmental concern. Data was retrieved from "*Programme for International Student Assessment (PISA)*" and consisted of 95,008 children – all fifteen years old and their parents from sixteen countries[17]. Unlike Meeusen's (2014) study, this time, gender-specific differences in the IG transmission of environmental

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[16] Ajzen's TPB is one of the most popular and a well-established socio-psychological model that helps researchers to analyze the complexity behind human behavior. In the marketing literature, it is widely utilized by different authors while studying consumer attitudes and behaviors (e.g., the attitude-behavior gap). TPB model shows that human behaviors are basically driven by intentions that are formed based on attitudes, subjective norms (i.e., social norms), and perceived behavioral controls.

[17] These countries include Germany, Colombia, Qatar, Bulgaria, Denmark, Iceland, Hong Kong, Poland, Portugal, Korea, Italy, New Zealand, Luxembourg, Croatia, Turkey, and China. Casaló and Escario (2016) reported significant coefficient estimates, $p<0.01$ for the environmental concern level of parent-child pairs in fourteen countries except Poland and Denmark. Among sixteen countries, Turkey had second highest environmental concern index level (≈33%), indicating that Turkish parent-child pairs were found to be highly concerned about various environmental issues (e.g., air pollution, water and energy shortages, etc.).

concern were reported by utilizing the gender schema theory (Bem, 1985). Compared to boys, girls were found to be more concerned about the environment.

Continuing with studies in the second group, Grønhøj (2007) employed a qualitative exploratory research approach (i.e., essay writing in-class hours) to study the sustainable consumer socialization process among one hundred and seventy-five Danish adolescents. Essays written by young students provided insights into the consumer socialization process and its relationship with sustainable consumer practices. Evidently, it was shown that "*water, energy consumption, waste disposal, and transportation behaviors*" were the most mentioned topics in essays. Importantly, the outcomes of this study created an initial understanding of how young consumers perceive sustainable consumer socialization processes. According to the study, the family, especially parents, were found to play essential roles in the sustainable consumer socialization process. However, other than the family, it was also noted that outcomes of the desirable sustainable consumer socialization should depend on the three-following factors:

  i.   Age of the socialized consumer, where it may directly affect the direction of IGI.
  ii. Consumer's own (i.e., personal) values, attitudes, and behaviors toward sustainable consumption.
  iii. Cultural or social frames (i.e., different contexts) that consumers live in.

To illustrate, as follows, we can understand the importance of parents and personal consumer attitudes in the sustainable consumer socialization process from the words of an eighteen-year-old male consumer:

"*My life as a consumer is definitely going to be colored by the opinions and attitudes that my parents have expressed. But on the other hand, one does have attitudes and points of view when one is 18. So even though my parents have told me that buying organics is the best thing to do, I am not necessarily going to do it, you see, many people are stingy and rather indifferent when they cannot personally see the disadvantage and the consequence of their choice. But my parents' lectures are most definitely going to put their mark on me.*" (Grønhøj, 2007, p.14)

After conducting this exploratory research, Grønhøj and Thøgersen (2009) carried out quantitative research to better understand the IG transmission of pro-environmental consumer values, attitudes, and three specific behaviors, namely, waste disposal behavior, purchasing sustainable-organic products, and electricity saving-consumption behavior. The reason behind choosing and studying such sustainable behaviors was that they wanted to measure everyday household consumption practices, where both parents and children can involve equally and practice regularly. To gather data, they conducted an online survey between 16-18 years old teens and one of their available parents *(N*= 601*)*. Based on Schwartz's (1994) theory of ten Universal Values, they reported significant and positive parent-child correlations on various values such as universalism (i.e., environmental and altruistic values), but effect sizes were relatively weak (e.g., $r_{universalism}$=.18, *p*<.05; $r_{social-altruistic}$=.12, *p*<.05; $r_{conformity}$=.18, *p*<.05). Correspondingly, they found significant, stronger, and positive correlations between parents and children with respect to three following sustainable consumer behaviors: waste disposal behavior: *r*=.41, *p*<.05; purchasing sustainable-organic products: *r*=.49, *p*<.05; electricity saving behavior: *r*=.13, *p*<.05. Outcomes of this study showed that IGI was the most apparent and evident for visible behaviors like purchasing sustainable-organic products because such buying processes usually end up in the kitchen, where both parents and offsprings have opportunities to learn and

be informed about these sustainable products. On the contrary, IGI was less apparent for invisible behaviors (e.g., electricity consumption). Overall, the study confirmed that the family is a suitable site for pro-environmental consumer socialization.

As a follow-up study, using the available representative data from Grønhøj and Thøgersen (2009) and adapting the consumer socialization theory (CST) (e.g., Ward, 1974; John, 1999), Grønhøj and Thøgersen (2012) studied effects of two different factors, explicitly, "*personal attitudes*" and "*family norms*" on the IG transmission of three pro-environmental consumer behaviors studied in the previous research. Results indicated that as children continuously observe their parents' acts, they develop attitudes toward such consumption behaviors. Also, family norms were found to be as significant as personal attitudes for young consumers in engaging specific consumption acts such as purchasing sustainable products.

To provide a clearer perspective on studying sustainable consumer socialization processes, Matthies and Wallis (2015) published a book chapter which reviews the related literature. Similar to the perspective provided by Grønhøj and Thøgersen (2009), they argued that sustainable socialization processes of consumers should differ according to the type of consumption act they engage in. By way of an example, the learning process of buying organic products can be different from the learning process of electricity saving behavior. Subsequently, they proposed a dual view model (see Figure 2.3) which provided two different perspectives on studying the family transmission of sustainable consumption. According to Figure 2.3, the family socialization process of sustainable consumption should accept and embrace
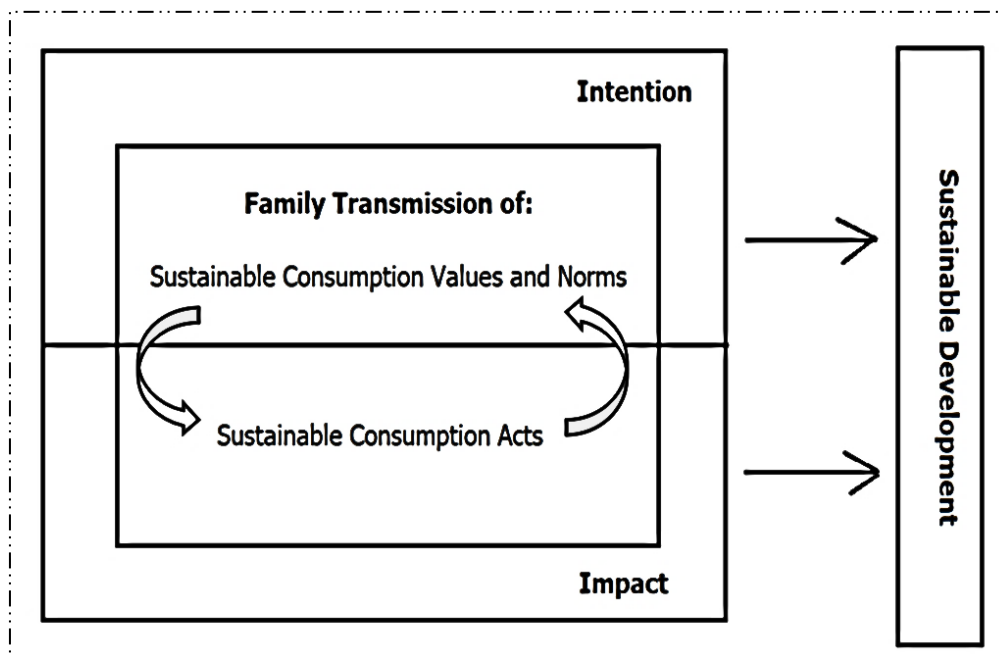
Figure 2.3. A dual view model on IG transmission of sustainable consumption: Modified from Matthies and Wallis (2015, p.270)

transmissions of both "*intentions*" (e.g., values, norms, attitudes) related to sustainable consumption – the first perspective of the model and "*impacts*" (e.g., acts, behaviors, decisions) occurring as a result of engaging in everyday sustainable consumption practices – the second perspective of the model. This will help consumers to accomplish the bigger picture of sustainable development goals. Likewise, in our study, we embrace the dual view perspective provided by this conceptual model. In line with Figure 2.3, we acknowledge that the IG transmission of sustainable consumption should entail both attitudes – (intentions) and behaviors – (impacts) of consumers.

To further explore different factors possibly affecting the IG transmission of pro-environmental consumption, Grønhøj and Thøgersen (2017) studied the role of parenting style. Based on an

online survey, data were collected from four hundred and forty-eight young Danish people, aged between 18-20 years old and their parents. The results of the study pointed out that "*the autonomy supporting parenting approach*" [18] can increase adolescents' motivation to engage in pro-environmental consumption practices. Based on self-determination theory (SDT) (see Deci and Ryan, 1985), it was shown that young consumers were less willing to engage in actions for the environment, compared to their parents. The study further pointed out the significance of considering parents' internalized motivations and their potential impacts on adolescents' pro-environmental behaviors.

Next, some significant limitations of the reviewed literature will be discussed critically. As previously mentioned, the literature review confirms that all pro-environmental IG research is either carried out in Western or Asian countries including Japan (Nakamura, 2003; Ando et al., 2015), Denmark (Grønhøj, 2007; Grønhøj and Thøgersen, 2009, 2012, 2017), Germany (Matthies et al., 2012; Ando et al., 2015), and Belgium (Meeusen, 2014). These countries represent developed and industrial cultures. In contrast, except Casaló and Escario's (2016) multi-national IG research on environmental concern, most studies have ignored and not been conducted in developing OECD countries like Turkey. In this respect, we intend to fill this shortcoming.

OECD Statistics (2019) shows that food: (24%), transport: (16%), and housing: (14.4%) are three main categories forming total consumption expenditures of households in Turkey. Recent available data for Turkey indicates that three consumption

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[18] It is a parenting approach that encourages children to be independent, self-motivated, and autonomous in their decisions.

categories: food, transport, housing, with the highest environmental impacts, constitute 54.4% of final family consumption expenditures. These figures show the importance of reducing household consumption to ensure the sustainable development in the country. According to OECD (2002), altering households' unsustainable consumption behaviors is key to achieving sustainable development goals in OECD countries like Turkey, yet different drivers behind consumption behaviors of households in such countries are still not well understood; thus more research efforts are required. Within this context, we contend that the domain of IGI may provide a possible explanation as a factor possibly affecting the development of SCAs and SCBs in Turkish families.

While investigating the IG association of pro-environmental consumption orientations, almost all studies in the literature have been conducted on children of primary, secondary, or high school age, as it was shown in Table 2.1. As a matter of fact, high school age (i.e., around 15 years old) young offsprings represented a significant (i.e., great) part of their sample size. According to Hess (1994), offsprings who are in this age stage do not have well-developed attitudes or stable beliefs. Henceforth, their beliefs, attitudes, and behaviors toward the environment and sustainable consumption may still be in the development (i.e., forming) stage and can subject to many outside influences other than family transmission or IGI. Although some researchers have tried to include subjects who are 18 years old and older in their studies (e.g., Grønhøj, 2007; Grønhøj and Thøgersen, 2009, 2012, 2017), this age segment constitutes only a small part of the sample size of cited studies, so it is reasonable to say that extant literature

research in the area is limited between specific age groups (i.e., adolescents and teens).

Despite this somewhat narrow focus, it is known that IGI can continue into young adulthood (i.e., from 18 to 30 years old) and potentially beyond (Shah and Mittal, 1997, p.55-56). As a result, there is a need for more research examining pro-environmental IGI on different age groups, especially on young adults who are in 18-30 years of range as they should have more well-established beliefs, attitudes, and behaviors concerning environmental protection and sustainable consumption. To give an example, according to UNEP and UNESCO (2001, p.7), young adults who are in the age group of 18-25 are very concerned and conscious about the environment. They frequently gather information on how to alleviate their negative social and ecological impacts of consumption choices because they understand that their generations are consuming a lot. Recognizing young adults' attention to environmentally friendly consumption practices, it will be interesting to see how SCAs and SCBs of them are shaped by means of IGI. This study addresses this need by focusing on college-age young women and their mothers, as previously stated in section 1.4.

Similar to limitations of early IGI studies in the consumer behavior field (refer back to section 1.3 to recall and for initial discussion), existing studies on pro-environmental IGI have also neglected to measure the effects of other possible influences that are different from IG transfer. For instance, Grønhøj and Thøgersen (2009, p.417-418) utilized multivariate generalized linear model (GLM) analysis to understand significant differences in real means of parents and offsprings. They showed the IG similarity (i.e.,

consistency) on pro-environmental consumption values, attitudes, and behaviors with Pearson's correlation analyses (PCAs) in terms of raw similarity percentages. Likewise, Meeusen (2014, p.82-84) reported basic/raw correlation sizes between environmental concern levels of parents and offsprings as indicators for IG effect sizes. Further, standardized regression coefficients were used in the study to understand what percentage of the variance in environmental concern of offsprings can be explained by parents' environmental concern or vice versa. Besides the usage of correlation and regression analyses, Grønhøj and Thøgersen (2017, p.15-16) conducted paired samples t-tests to compare means of parents and offsprings for three pro-environmental consumption behaviors. They also directly reported statistically significant differences in real means as indicators for the existence of IGI.

Although these studies used statistically correct methods to measure raw IGI, the issue of simple agreement bias (Mandrik et al., 2005, p.815) which was discussed earlier in section 1.3 may still limit the generalizability of their findings since they rely on the raw level of similarity and report basic correlations between parents and offsprings while judging the existence of real IGI and calculating IG effect sizes. To estimate more accurate IG effects, nominal effects (Mandrik et al., 2005) need to be measured. It appears that no studies in this area have employed the nominal method to overcome this limitation. In this respect, we aim to demonstrate IG effects more precisely by employing the nominal dyad method.

In summary, research exists on pro-environmental IGI, but only some authors focused at the topic from the consumer behavior perspective (Grønhøj, 2007; Grønhøj and Thøgersen, 2007, 2009,

2012, 2017; Matthies and Wallis, 2015). Within the scope of environmental psychology, other studies examined the IG transmission of specific sustainable habits, values, attitudes, and behaviors (e.g., environmental consciousness, environmental concern) (Nakamura, 2003; Matthies et al., 2012; Meeusen, 2014; Ando et al., 2015; Casaló and Escario, 2016). However, findings of these studies also played a crucial role and shed light on the topic of IG transmission of sustainable consumption. Putting all studies from these two perspectives together, the overall literature review reveals that the home (i.e., the family) is an important center in the development and transfer of sustainable consumption patterns.

Nonetheless, as originally stated by Matthies and Wallis (2015, p.277), the scope and the transmission strength (i.e., effect sizes of IGI) of pro-environmental consumer values, attitudes, and behaviors are not well known/documented; thus there is room for continued exploration. Unlike previous research in the area that focused on the IG transmission of limited SCAs and SCBs (e.g., Grønhøj and Thøgersen, 2009, 2012, 2017; Matthies et al., 2012; Meeusen, 2014; Ando et al., 2015; Casaló and Escario, 2016), we expand the scope of sustainable IG consumer research by looking at a broader range of pro-environmental consumption attitudes and behaviors. The present research intends to offer a response to shortcomings of previous literature research mentioned above and further explore it in light of two factors: parent-child communication and peer influence since these two factors have received almost no attention in the area of pro-environmental IGI.

Previously, possible influences of peers have generally been neglected in the IG transmission of environmentalism, with the exception of Collado's et al. (2017, 2019) works, which will be

discussed later in section 3.5. Moreover, only two investigations conducted by Matthies et al. (2012) and Meeusen (2014) have examined the role of parent-child communication in the IG transmission of re-use behavior and environmental concern separately. Even though the pro-environmental IG research in the area of sustainable consumer socialization is just starting to emerge in the last years, more studies are certainly called for to reveal new sustainable IGI among specific dyad types, on different age groups, and cultures by adapting novel methodological, theoretical, and measurement approaches.

CHAPTER 3 CONCEPTUAL DEVELOPMENT AND HYPOTHESES

3.1.   Chapter Outline

This chapter provides a conceptual basis in order to explain the proposed research framework/model and rationalize hypothesized relationships. Initially, the co-orientational model is introduced to the reader, and reasons for studying the mother-daughter dyad within the model and scope of the work are clarified in section 3.2. Afterward, with the support of literature findings, four research hypotheses are theoretically developed and proposed in the corresponding sections.

3.2.   The Co-orientational Model

Unlike all past IG research in the domain of environmental consumer psychology, we adapt a different conceptual model to study IGI. The conceptual framework of this study is derived from the co-orientational model (Chaffee and McLeod, 1968). This model is suitable for investigating and studying consumer socialization processes, particularly IGI on dyadic and interpersonal interactions, where it has been commonly operationalized, validated and applied in past IG research that focused on consumption orientations (Moore-Shay and Lutz, 1988; Moore et al., 2002; Mandrik et al., 2005, 2018) and it is also in line with the consumer socialization theory (e.g., Ward, 1974; John, 1999). According to Chaffee and McLeod (1968), the model contains two important constructs, namely, agreement and accuracy. The first construct – agreement was defined as "*the degree of uniformity or consistency*" across cognitions of two people. It looks at whether

two people's cognitions comply and match with each other on a particular matter – sustainable consumption attitudes and behaviors in this study. Principally, SCAs and SCBs are considered as focal cognitions in the co-orientational model, and the agreement level between mothers' SCAs-SCBs and daughters' SCAs-SCBs indicates the existence of IGI after accounting for nominal effects. The second construct – accuracy was viewed as each dyad members' prediction capability to correctly state the cognitions of each other in an interpersonal relationship. In other words, the accuracy construct reveals how well each person in the dyad knows the others' beliefs, attitudes, and behaviors. Within this framework, the accuracy variable of the model was utilized by consumer researchers to foresee the direction of IGI and show the observable communication effectiveness between two people, where higher prediction accuracy is expected to indicate more communication between dyads (e.g., Chaffee and McLeod, 1968; Moschis, 1988; Moore-Shay and Lutz, 1988; Mandrik et al., 2005, 2018). In this study, we will also use the accuracy variable as the indicator of objective communication effectiveness and utilize it to predict the direction of IGI. In brief, Figure 3.1, next page represents the conceptual framework of this study as follows.

Understandably, IGI may involve different members of a family. Our focus in this study is on the dyadic IGI (as discussed previously), which can be interpreted from Figure 3.1. Ideally, dyadic IGI is expected to occur between two members of a given family, such as mothers-daughters, mothers-sons, fathers-daughters, and fathers-sons. Within this scope, Moore-Shay and Lutz (1988) initially discussed, and Shah and Mittal (1997, p.55) later emphasized that the strength of IG relationship may vary for different dyad types, yet focusing on specific family units for anal-
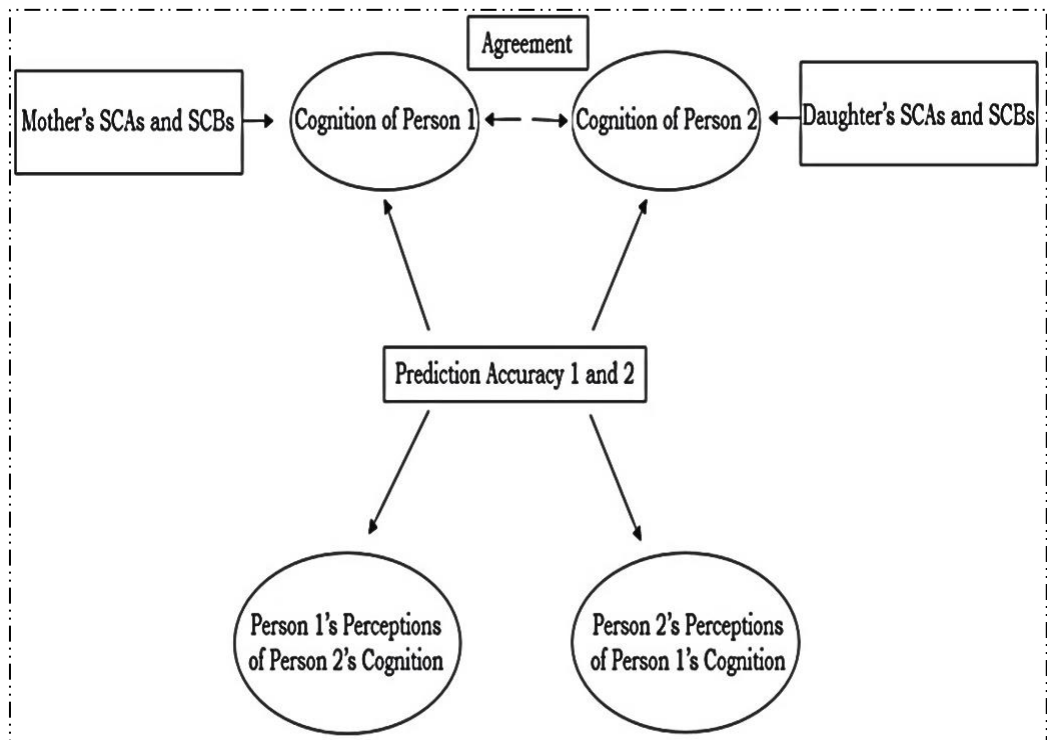
Figure 3.1. The co-orientational model: Adapted from Chaffee and McLeod (1968)

ysis can improve the validity of IG research (Shah and Mittal, 1997, p.55). Among different family members, it is generally recognized that fathers play a more limited role in the consumer socialization process of their children (e.g., Coley, 1998; Bakir et al., 2006). In contrast, earlier IG research conducted between the 1980s and 1990s has shown that mothers are deemed to be the most influential and active in the consumer socialization process of their children (see Moschis, 1985; Moore-Shay and Lutz, 1988; Francis and Burns, 1992; Carlson et al., 1994). Therefore, recognizing the more important role of mothers in the process, we study IGI between mothers and daughters.

There are other reasons why we choose to focus on this specific dyad type. One important reason is that unlike opposite gender

dyads, dyads comprised of the same gender provide more communication opportunity and share a higher degree of interest generally, when it comes to giving and having similar consumption relevant attitudes, behaviors, preferences, and decisions. Thus, more IG influence can be expected. This statement was previously reinforced by various other IG consumer research that studied and found significant results between the mother-daughter dyad (e.g., Moore-Shay and Lutz, 1988; Francis and Burns, 1992; Carlson et al., 1994; Moore et al., 2002; Mandrik et al., 2005, 2018 for discussion). These studies provide sufficient evidence that mother-daughter dyads may show positive correlation and higher levels of similarity than other dyad types in their consumption attitudes, behaviors, preferences, and choices.

Mothers and daughters also share similarities in the adaptation of specific consumption-related values that may eventually influence their sustainable consumption practices. Along these lines, based on a sample of eighty-two adolescents and their mothers, Flouri's (1999) study showed that materialistic values and attitudes of mothers, referred to as maternal materialism, were significantly and positively correlated (β = .43) on predicting their adolescents', mostly daughters' level of materialism. Moore-Shay and Berchmans (1996) also studied the IG transmission of materialism within the context of consumer behavior. By taking materialism as one of the dependent variables (DVs) in their study and utilizing it within the co-orientational model, parents and young adults were asked to report their level of materialism and then requested to predict each other's responses. Results showed that the actual attitudes of parents were not significantly correlated with predictions of their children (r=.17, *NS*), but more interestingly, parents were able to predict their children's actual

attitudes more accurately ($r=.36$, $p<.05$). The findings of such studies are relevant for our purposes because previous research has shown that materialistic values are directly correlated to environmental beliefs (e.g., Kilbourne and Pickett, 2008) and ecological behaviors (e.g., Bakırtaş et al., 2014), which we expect them to exert similar influence on SCAs and SCBs. Therefore, studies conducted by Flouri (1999) and Moore-Shay and Berchmans (1996) helped a justification and encouraged us to study mothers and daughters by setting the stage for much work that includes investigations into IG sustainable consumption research.

In addition, Moschis et al. (1984) showed that the socialization process of males and females may differ in regard to consumer behavior. They highlighted that compared to males, females are more likely to engage in shopping behaviors and talk (i.e., communicate) regularly about overall consumption decisions with their parents. Correspondingly, Zelezny et al. (2000) reviewed a decade of research conducted between 1988-1998 on gender differences in the development of pro-environmental attitudes and behaviors. They concluded that compared to males, females are more environmentally and socially responsible, which may motivate them to take environmental issues into greater account in their consumption decisions. Based on the findings discussed above, it was deemed suitable to investigate female participants in the current study.

In sum, as formerly suggested by Moschis (1988, p.572-573), specific dyad types and direction of influences should be studied and addressed on IG consumer research in order to better understand different types of consumer behaviors and how they

are developed by means of specific interpersonal interactions. In light of this rationale and the various discussion points provided above, if there exists an IGI on SCAs and SCBs, we believe there may be a greater opportunity for it to be revealed within the mother-daughter dyad whose IG influences and relationships are widely documented in the general consumption domain. In the following parts, we develop hypotheses of this study.

3.3. IGI on SCAs and SCBs

In detail, section 2.3 comprehensively discusses and provides necessary empirical and theoretical evidence regarding the presence of IGI on sustainable consumption. Given that there has been no study directly measuring IGI on SCAs and SCBs in Turkey and, also, that there are some conceptual and methodological lacking points and doubts about previous research findings, the first hypothesis that we propose is the fundamental one related to the existence of true IGI on SCAs and SCBs:

H_1. Intergenerational influence on sustainable consumption attitudes and behaviors exists between mothers and daughters after accounting for nominal effects.

3.4. Parent-Child Communication

In this part, most particularly, the role of parent-child communication on the level IG influence is discussed. Moschis and Churchill (1978, p.607) define intra-family communication in the consumption domain as "*overt interactions between children and parents about goods and services.*" In the literature, parent-child communication has been considered as a vital mechanism in the

process of consumer socialization and IG transmission of consumption-related choices, preferences, attitudes, and values (e.g., Moschis and Churchill, 1978; Moschis et al., 1984; Moschis, 1985; Viswanathan et al., 2000; Mandrik et al., 2005, 2018). From this perspective, Moschis (1985) notes explicitly that consumption-related beliefs, attitudes, values, and behaviors of children may directly be affected by parent-child communication or acquired as a result of it. He further highlights that parent-child communication may indirectly influence a child's learning process while interacting with other information sources as consumers. In consumer socialization research, it should be mentioned that the effectiveness of parent-child communication is determined by three factors, which are "*frequency, pattern, and intent*" (see Moschis et al., 1984; Palan, 1998). Taking these factors into account, research appears to support the positive influence of parent-child communication on real and perceived IG similarity of various consumption preferences (e.g., brand preferences, product and store choices), values, and behaviors of children (see Moschis, 1985; Heckler et al., 1989; Mandrik et al., 2005, 2018). In other words, empirical evidence exists that effective communication between parents and children leads to higher IGI. Would these findings hold in the sustainable consumption domain? We intend to tap this question with the help of H_2, which will be proposed at the end of this section.

From the perspective of sustainable consumption, various topics such as environmental concern, recycling activities, buying organic food, handling household waste, energy (e.g., limiting car usage, travel choices), and water-saving actions may be relevant features of family life; thus family members may communicate about these issues. Previous studies seem to support this

contention. For instance, Grønhøj (2006) performed a qualitative study on family communication and pro-environmental consumption practices. By using vignettes and conducting interviews with thirty Danish parents, the study reported that energy and water (especially showering habits) are two important consumption areas where the most frequent communication happens between parents and children. The study further showed that family members often influence each other by means of both "*peaceful communicative actions*" and "*conflict-ridden based talks.*" Thanks to these acts and talks, they may know better about each other's preferences regarding sustainable consumption. By way of another example from the topic of travel socialization, a study conducted by Haustein et al. (2009) empirically showed that adolescents who communicate regularly about their negative environmental impacts of travel mode choices (i.e., car usage) with their parents develop stronger personal and social norms which may motivate them to consider alternative travel choices.

Admittedly, it appears that there is a critical research need to understand the role of parent-child communication on sustainable consumption area since the potential influence of interpersonal communication on IG transmission and socialization of environmental consumerism is undermined and has not been determined, with only few studies. Chiefly, Grønhøj (2006) directed attention to the topic of family communication and demonstrated that it plays an essential role in transmitting pro-environmental consumption practices between generations. Nevertheless, this study used qualitative methods, so the effect of parent-child communication on IG influence of SCAs/SCBs remains to be demonstrated with quantitative approaches.

In another study, Matthies et al. (2012) highlighted that as families communicate more about the source of environmental problems and their negative consequences, children may be more likely to develop personal norms and awareness to enhance their pro-environmental consumer behaviors. Findings of this study particularly showed that paper re-use behaviors of children are positively influenced by parent-child communication about paper usage and communicating about problem knowledge. Moreover, Mead et al. (2012) documented the positive relation of family communication with information-seeking behaviors of adolescents on global warming and climate change. Most recently, Meeusen (2014) found that parent-child communication patterns about the environment have a strong positive influence on the effective IG transmission of environmental concern as a mediating (i.e., intermediary) variable.

Consistent with the view of Moschis (1985), the general assumption that may be inferred is that parents and children who engage in more frequent and more effective communication about each other's consumption practices are more likely to display higher IG similarity. Grønhøj and Thøgersen (2012) supports this stance by demonstrating that communicating about the environment tends to make SCAs and SCBs more visible in the family environment and ensures more effective IG transmission process of pro-environmental consumption. Based on the several studies reviewed in this section, it seems reasonable for us to expect that there will be greater IG similarity for SCAs and SCBs with an increase in communication effectiveness between mothers and daughters. Therefore, considering all the points made above, we state the following hypothesis:

H₂. Communication effectiveness between mothers and daughters is positively related to intergenerational influence on sustainable consumption attitudes and behaviors.

3.5. Peer Influence

In this part, we discuss the role of peer influence on the level of IG influence. Although peers are recognized as one of the primary socialization agents in consumer socialization area (Ward, 1974; John, 1999; Mandrik et al., 2005, 2018), relatively little research attention has been devoted to understanding potential influences of peers on offspring's pro-environmental consumption attitudes and behaviors. It has been documented previously that peers play influential roles in the process of sustainable consumption (Salazar et al., 2013, p.172). In the development process of a pro-environmental identity, it is also shown that peers may positively shape their friends' recycling actions (Chawla, 2009), purchase intention of organic and sustainable products (Gotschi et al., 2009; Salazar et al., 2013), environmental attitudes (Duarte et al., 2017; Collado et al., 2017), and environmental behaviors (Collado et al., 2017, 2019).

To exemplify, Collado et al. (2017) conducted a quantitative study with (9-13) years old Spanish children in Madrid, where they showed that peers are one potential influence on environmental socialization. Notably, they revealed that best friends significantly explained children's environmental attitudes and behaviors and effect sizes were larger and more sensitive for older children and girls. With a recent follow-up study on a sample consists of 12-19 years old Spanish adolescents, Collado et al. (2019) further showed that peers may exert normative influences to shape adolescents'

self-reported pro-environmental behaviors. It was highlighted that not only parents but also peers may help adolescents to develop personal norms (e.g., moral responsibility to protect the environment) through direct influences. To the best of our knowledge, although positive effects of peer-based reference groups on children's sustainable practices are identified in the growing literature, the strength of the informational impact of peers on IG transmission of sustainable consumption has neither been explored nor tested, so there is a need to understand how peer influence may affect IG similarity for SCAs and SCBs.

Much prior research supports the claim that children spend more time with their peers/friends and devote less time to their parents as they grow up (Ward, 1974; Bearden and Rose, 1990; Larson et al., 1996; Meyer and Anderson, 2000; Collado et al., 2017, p.28; Mandrik et al., 2005, 2018). Expectedly, children engage in more frequent communication with their peers who may help them to establish dynamic social motivations for consumption (see Moschis and Churchill, 1978 for discussion). Accordingly, compared to parental influence, PI on children increases markedly as their reference group – friend circle expands comparatively (see Wigfield et al., 2006). In this respect, past IG consumer research supports the idea that people who are under higher social influence by peers may adapt their behaviors accordingly and show less parental similarity in their consumption orientations. For instance, Mandrik et al. (2005) demonstrated that peer influence, which was studied as a personality trait is negatively related to mother-daughter similarity for the consumer orientation – prestige sensitivity. Further, Mandrik et al. (2018) demonstrated the negative impact of peer influence as using conformity motivation on IG similarity of brand preferences with a cross-national study

in the US and PRC. Would these findings hold in the IG transfer of sustainable consumption? We attempt to tap this question with H₃.

Broadly speaking, peer influence may vary between societies/cultures, and Turkey has a highly collectivistic culture with a low individualism score of thirty-seven and a relatively higher power distance score of sixty-six (see http://hofstede-insights.com/country/turkey/ for Turkey's cultural dimensions based on Hofstede Insights), where people in collectivistic cultures commonly display more attachment to their in-group members. Due to this reason, we believe that higher peer influence on daughter participants of this study may attenuate the IG similarity. More specifically, assuming that daughters are surrounded by their peers in the college environment and live away from their mothers and knowing that peers may have different set of consumption knowledge, preferences, attitudes, values, and behaviors from mothers, it may thus be reasoned that higher informational PI should weaken the mother-daughter similarity for SCAs and SCBs by indicating a negative relationship. Based on the literature review, the following hypothesis is stated:

H₃. Peer influence on daughters is negatively related to intergenerational influence on sustainable consumption attitudes and behaviors.

3.6.   Who is Passing the Torch?

In this part, we examine following questions. What may be the direction of influence in IG transfer of SCAs and SCBs? Who may pass the torch when it comes to pro-environmental consumer socialization? H₄ will focus on these queries by adapting the

perspective of reverse consumer socialization (Ekstrom, 1995). As one may recall from section 1.3, reverse IGI implies children's influence on parents. In this respect, it is documented that we may see reverse IGI in markedly broad consumption situations, cases, categories, and contexts. For instance, in the school environment, college students may get exposed to high-tech products (e.g., new products) related to some forms of communication and information technologies (e.g., smartphone apps, computer software, social media). Hence, for these product categories, it is reasonable to expect that children may influence their parents' preferences to a higher degree than parents do, so perceived expertise may be seen as a predictor of influence. Nevertheless, this is just one rudimentary hypothetical example.

In the literature, much sustainable IG research has assumed that IGI flows from parents to children (i.e., forward IGI) (e.g., Grønhøj and Thøgersen, 2007, 2009, 2012, 2017; Meeusen, 2014) due to its compatibility with the social learning theory (Bandura, 1977), as well as the lower importance given to environmental commitment by the young generation (e.g., Grønhøj and Thøgersen, 2009), age range, education status, and cultural characteristics of studied sample. However, empirical and theoretical evidence exists that this assumption may not hold true in every condition and situation, so in some cases, the child may act as a catalyst (i.e., as the primary influencer) for environmental consumerism. In other words, it may be possible to see reverse IG transfer in this sphere.To illustrate, research carried out by Schlossberg (1992) found that kids may provide environmental information to their parents and teach them about sustainable consumption by altering their shopping behaviors accordingly.

Moreover, Easterling et al. (1995) developed a theoretical model to study the concept of "*ecological consumer resocialization.*" According to them, children influence their parents' sustainable brand loyalty, recycling choices, behaviors, and sustainable purchasing actions (e.g., decision-making processes) (see also Ekstrom, 2007) depending on the existence and availability of "*family resources*" (e.g., time, income), "*level of exposure to nature*", "*cognitive status*" (e.g., maturity level of a child), favorable FCPs, and social influences that support environmental concern of children. With a qualitative study, Grønhøj (2007) also provided notable support for the existence of reciprocal consumer socialization in the context of water and electricity consumption in Denmark. In a similar vein, Gentina and Muratore (2012) conducted another qualitative study, where they showed that teenagers may influence their mothers' pro-environmental consumption behaviors based on communication frequency and parenting styles. In their study, on the topic of reverse IG transfer, one teenager explicitly notes that:

> "*I think my participation in environmental protection influences my mother to participate too. I give advice to my mom, for example, wearing extra clothing instead of turning up the heating, turning off the light, or selecting products with green labels.*" (Gentina and Muratore, 2012, p.164)

All in all, these studies support the possibility that the child may also act as a change agent when it comes to consuming sustainably. We expect to obtain similar results with H$_4$.

Even though different determinant factors may play roles in assessing the direction of influence, we investigate the potential role of one specific factor called subjective knowledge. In the literature, it may be seen as self-rated or perceived knowledge and often refers to what individuals (i.e., consumers) think that they

know on a particular topic (see Brucks, 1985) – as opposed to objective knowledge, which is what a person actually knows. Compared to objective knowledge, the broader positive impacts of subjective knowledge on environmental concern, beliefs (Pagiaslis and Krontalis, 2014), overall SCBs (Ellen, 1994), and specific practices such as organic food consumption (e.g., Pieniak et al., 2010; Aertsens et al., 2011) were documented respectively. Considering the wide availability of abundant information sources (e.g., the internet, courses, seminars, student-clubs, voluntary initiatives) about the relatively new concept of sustainable consumption in the college-environment, we naturally expect that daughter participants of this study will report higher subjective sustainable consumption knowledge (SSCK) scores. In this aspect, it is plausible to state that daughters may be more informed on this topic, so they may influence their mothers' SCAs and SCBs by being role models and potentially initiating discussions about it. Therefore, mothers may see their daughters as a primary source of information in this sphere. It is always possible that parents, being older and perhaps a bit out of touch with new social movements may be open to influence from children. Theoretically, we expect that SSCK may act as an influential mechanism in the formation of reverse IG transfer. In parallel with Easterling's et al. (1995) view of sustainable consumer resocialization and considering socio-demographic and cultural characteristics of our sample, particularly daughters, we consider that reverse IG transfer is more likely for our case, so we propose that IGI will flow from daughter to mother at a greater extent than the other way around. Based on the literature review, we propose the following hypothesis:

H4. Intergenerational influence on SCAs and SCBs is greater from daughters to mothers than from mothers to daughters.

CHAPTER 4   METHODOLOGY

4.1.   Chapter Outline

This chapter is divided into three connected sections. Section 4.2 provides a brief overview of the general structure and design process of surveys. Section 4.3 outlines the sampling and data collection method that we use in this study. Notably, it reviews the recruitment process of participants and the demographic characteristics of the selected sample. Section 4.4 continues with DVs and IVs of this study and show how we intend to measure these variables. Primarily, we provide information about various scales that are adapted from the research literature and utilized to measure sustainable consumer attitudes, sustainable consumer behaviors, subjective sustainable consumption knowledge, peer influence, and parent-child communication, respectively.

4.2.   Survey Designs

Similar to previous IG consumer research conducted through the lens of consumer socialization theory (e.g., Moore-Shay and Lutz, 1988; Francis and Burns, 1992; Moore et al., 2002; Mandrik et al., 2005, 2018), we employed the parallel survey methodology, incorporating constructs derived from the co-orientational model in this study. Complying with the structure of the parallel survey method, we prepared two different but nearly identical questionnaires for each pair: one for daughters (see Appendix C) and one for mothers (see Appendix D). The daughters' survey was administrated via traditional paper and pen method. On the other hand, an online survey tool (SurveyMonkey) was utilized to design

and administer the mother's questionnaire. Most items listed in both questionnaires were simply rephrased or reworded in order to match the participants. Explaining this briefly with an example, an item to measure subjective (i.e., self-reported) communication between daughters and mothers can be read as "*There has been open communication between my mother and me over time*" in the daughter's questionnaire. Meanwhile, the parallel item was phrased as "*There has been open communication between my daughter and me over time*" in the mother's questionnaire. Additionally, participants were asked some questions which require predicting each other's attitudes and behaviors related to sustainable consumption. The following statement is an example of a prediction question from the daughter's questionnaire: "*My mother would limit her use of energy such as electricity, natural gas, or fossil fuel consumption to reduce her harm on the environment.*"

Besides, it is worth noting that we initially designed each questionnaire in English to keep compatibility and originality of measurement scales that we use. Knowing that the mother tongue of participants (i.e., sample group) is not English, we then created their Turkish versions by translating them into Turkish correspondingly (see Appendix E and Appendix F). This may help us to prevent misunderstandings that may arise in reading and answering questions while conceivably avoiding cultural bias. In the process of translation, both surveys were checked by a marketing professor whose native language is English. Following the parallel back-translation method, they were also back-translated by two Turkish-English bilinguals to maintain accuracy and consistency between two versions.

4.3.   Participants and Their Demographic Compositions

Moschis (1988, p.572-573) highlighted the need for focusing on specific dyads in IG consumer research to limit background related (e.g., sex, race, or social class) diversities of participants and hypothetically enhance reliability and validity of responses given to a research instrument. Consistent with this and all previous suggestions (*refer back to section 3.2*) on studying the sampling unit of a mother-daughter dyad, the convenience sampling method was used in this quantitative study by randomly recruiting and conducting self-administrated surveys with 152 Turkish university-age women studying in METU Northern Cyprus Campus after obtaining compulsory permissions related to research ethics from METU Northern Cyprus Campus Scientific Research and Publication Ethics Committee with the application no: BAYEK_01_10 (see Appendix A).

From 10 March 2019 to 1 May 2019 – over a seven-week period, participants were able to take part in this study in exchange for a small gift provision – meal (i.e., incentive) tickets (see Appendix B). Firstly, all participants were requested to indicate their level of agreement for given questions on SCAs, SSCK, and SCBs. Afterward, they were asked to predict their partners' level of agreement for the same questions as mentioned above[19]. Finally, participants filled out questions related to subjective peer influence (only completed by daughters), subjective communication

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[19] To clarify, in the second phase of survey, dyads indicated their beliefs of how their partner would answer to the same statements (i.e., SCAs and SCBs). Naturally, as one would expect, subjective knowledge questions are not included again in this stage.

It is also worth stating that both mother and daughter were asked not to exchange any survey-related information with her partner until both surveys were completed so that they did not influence each other's answers and guesses.

(completed by daughters and mothers), some control variables, and demographics in a given order.

Before starting to fill out the survey, each participant (i.e., daughter) was asked to provide her mother's e-mail address. Immediately upon receiving the address, an e-mail invitation contains an access link and user-friendly online version of the questionnaire was sent to the mother's e-mail to enlist her participation via surveymonkey.com. In order to ensure high response rates from mothers, automatic reminder emails were generated once a week and sent to mothers if they had not yet completed the questionnaire. Out of 152 e-mail invitations, 146 fully completed (i.e., valid, and useable) questionnaires were returned from mothers. Remaining six were left either incomplete (i.e., un-attempted) or included obviously careless responses; hence, they were dropped from further analysis, resulting in a very high response rate of 96.05%.

In accordance with Mandrik et al. (2005, 2018), who mailed questionnaires with prepaid envelopes to mothers' addresses and also obtained very high response rates, this novel online data collection approach from mothers was also found to be quite operational and applicable which may be utilized in future IG research that will focus on dyadic relationships. One probable advantage of this approach is that it directly eliminates data confusion problems in a dyadic study and can help researchers to keep track of their survey data conveniently. After collecting the data, we first formed a codebook, where we assigned numerical values to each item in questionnaires, as suggested by Kumar (2019). Appropriately, two different datasets (i.e., one for the

daughter and one for the mother) were created in SPSS by entering the collected data.

Table 4.1. Demographic characteristics of participants

Demographic Compositions of Daughters (Sample Size: 146)					
# of Siblings	**N**	**%**	**Education Level**	**N**	**%**
Only child	46	31.5	Bachelor's	129	88.4
One	65	44.5	Master's	17	11.6
Two or more	35	24	**Annual Family Income**	**N**	**%**
Age Group	**N**	**%**	Under 50000₺	22	15.1
18 – 23	104	71.2	Between 50000₺ – 100000₺	66	45.2
24 – 30	42	28.8	Between 100000₺ – 200000₺	40	27.4
x̄ = 22.42; σ = 2.54			Over 200000₺	18	12.3
Demographic Compositions of Mothers (Sample Size: 146)					
# of Children	**N**	**%**	**Education Level**	**N**	**%**
One	46	31.5	Primary School	15	10.3
Two or more	100	68.5	High School	42	28.7
Age Group	**N**	**%**	Bachelor's	65	44.5
40 – 49	72	49.3	Master's	16	11.0
50 – 59	62	42.5	PhD (Doctor of Philosophy)	8	5.5
60 – 69	12	8.2	**Annual Family Income**	**N**	**%**
x̄ = 50.17; σ = 5.65			Under 50000₺	22	15.1
Symbols used in this table:			Between 50000₺ – 100000₺	66	45.2
N: Frequency; %: Percentages			Between 100000₺ – 200000₺	40	27.4
₺: Turkish Lira; #: Number			Over 200000₺	18	12.3

In the following, related demographic characteristics of participants are reviewed one by one. Among daughters, the modal age (71.2%) was reported between 18 and 23 years old with a mean age of 22 years old (rounded down). Unsurprisingly, 88.4% of daughters (representing the majority) were studying for a bachelor's degree, and 11.6% of them were graduate students. On the other hand, the modal age of mothers (49.3%) was between 40 and 49 years old with a mean age of 50 years old (rounded down), and modal education (44.5%) was the bachelor's degree.

Additionally, 68.5% of mothers had at least two or more children. Both for daughters and mothers, the modal annual family income (45.2%) was reported between 50000₺ and 100000₺. Detailed demographics of the sample are presented in Table 4.1, previous page.

4.4.   Measures: DVs and IVs

Before entering a discussion about our measured constructs, independent and dependent variables, it is worth noting that all main measurement items used in this study have been operationalized and validated in previous research. For each measured construct, participants were asked to choose and rate their answers on a 5-point Likert scale, which ranged from 1= "*Strongly Disagree*" to 5= "*Strongly Agree.*"

***SCAs* and *SCBs*.** As discussed previously in section 2.3, prior pro-environmental IG research focused on the transmission of specific attitudes and behaviors (e.g., recycling and reuse (Matthies et al., 2012), concern about the environment (Meeusen, 2014; Casaló and Escario, 2016), waste disposal, energy-saving, and organic buying (Grønhøj and Thøgersen, 2009, 2012, 2017) with only limited items. Interestingly, they have neglected to measure attitudes and behaviors linked to sustainable transportation, sustainable giving, fair trade, various types of energy consumption, and others. To fill this gap, SCAs and SCBs of daughters and mothers were measured by asking fifteen different questions to them. Unlike past research, we attempt to focus on all three pillars of sustainability (i.e., social, economic, and environment) by using, adapting, and modifying eight measurement scales from the

research literature, where we measure a broader range of attitudes and behaviors of consumers related to;

1. Environmental concern
2. Waste reduction, recycling, and reusing
3. Reduction of energy consumption (e.g., electricity, natural gas or fossil fuel)
4. Sustainable transportation
5. Sustainable food consumption and green purchasing towards sustainably sourced products
6. Climate friendliness of products (e.g., sustainable product labels)
7. Sustainable giving (i.e., donation)
8. Responsible consumption (i.e., fair trade actions)

The items adapted and modified from socially responsible consumption behaviors scale (SRCB) (Antil, 1984), ecologically conscious consumer behavior scale (ECCB) (Roberts, 1996), fair trade subscale (Tanner and Wölfing Kast, 2003), socially responsible purchases and disposal scale (SRPD) (Webb et al., 2008), the GREEN scale (Haws et al., 2014), perceived consumer effectiveness (PCE) on climate-friendly purchasing – a subscale (Feucht and Zander, 2017), and sustainable fashion consumption behaviors subscale (SFCB) (Song and Ko, 2017).

Markedly, it should be stated that Berkin (2018) previously adapted eighteen different items from most of these cited scales to create constructs of SCAs and SCBs respectively, where the majority of adapted items were identical to ours. Hence, Berkin (2018) tested the compatibility and suitability of these items (i.e., reasonable fit of adapted items in the measurement model) by conducting an exploratory factor analysis (EFA) and found satisfactory results (i.e., significant factor loadings that exceeded 0.6) while simultaneously reporting SCAs *(Cronbach's Alpha)*: 0.82 ($N = 298$) and SCBs *(Cronbach's Alpha)*: 0.79 ($N = 298$). Nonetheless,

we further examine the validity and reliability of our constructs in section 5.2. Total SCAs and SCBs scale items can be seen in Table 4.2.

Table 4.2. Scale items: Measuring SCAs and SCBs

SCAs
SCA (1). It is important for me to decrease my consumption (use less or avoid buying products) in order to minimize impacts on the environment.
SCA (2). It is important for me that products I use do not harm the environment.
SCA (3). I am concerned about wasting the resources of our planet.
SCA (4). I show a serious effort to consume less in order to preserve our resources for future generations.
SCA (5). I would describe myself as an environmentally responsible person.
SCA (6). I feel a sense of responsibility for small growers and workers in lower-income countries that produce the things I buy.
SCA (7). I believe it is a good idea to introduce labels indicating the climate-friendliness of products.
SCBs
SCB (1). I limit my use of energy such as (electricity, natural gas, fossil fuel consumption) to reduce my harm on the environment.
SCB (2). I avoid buying products that pollute the water.
SCB (3). I recycle the materials I use (metals, papers, and plastics).
SCB (4). I normally make a conscious effort to buy products from recycled materials.
SCB (5). I ride a bicycle or use public transportation in order to reduce the impact of air pollution.
SCB (6). I donate to charities clothes that I no longer wear.
SCB (7). I am willing to pay a higher price to buy environmentally friendly or sustainably sourced products.
SCB (8). When buying foods, I pay attention to "*fair trade labels*" indicating that people growing and working in food production are treated fairly.

Dependent Variables. The agreement level (i.e., the IG similarity extent) between daughters and mothers regarding SCAs and SCBs is the main DV of this study. Fundamentally, the agreement level is the degree of consistency/uniformity across daughters' and mothers' responses. In other words, the agreement level focuses on how close answers participants give for the same items. Strictly speaking, for a given construct (i.e., SCAs or SCBs), we calculate the real agreement level by taking the absolute value of differences[20] between the daughter's real response and mother's real response to each item. That is, for each dyadic relationship (1

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[20] It should be cleared and noted that the difference score is the value from 1-5 of each mothers' and each daughters' response.

to 146), we create an agreement score based on summing their absolute value of differences obtained from each item. Then, we sum these agreement scores and divide it into the total sample size (i.e., 146), where we estimate a final real mean agreement score (i.e., $\overline{X}_{\text{Real Agreement Score SCAs or SCBs RD–RM}}$) for a given construct. Logically, lower real (final) means signify better IG similarity since we take absolute value of differences into account. On the next page, Table 4.3 further clarifies the calculation method of the agreement score. Nevertheless, with the similar logic, it is worth stating that the nominal effect (i.e., $\overline{X}_{\text{Nominal Agreement Score SCAs or SCBs ND–RM}}$) which is generated as a result of randomizations will be considered as a benchmark to test the IG similarity extent more accurately in section 5.3.

As discussed, similar to previous IG consumer research (e.g., Mandrik et al., 2005, 2018), we also estimate the direction of IGI by utilizing the accuracy construct of the co-orientational model. For a given specific item, we estimate the item prediction accuracy score for each dyad member by taking the absolute value of differences between one's prediction position (i.e., prediction response)[21] and partner's real position (i.e., real response). With a similar approach presented in Table 4.3, we then sum item prediction accuracy scores to have the total prediction accuracy score (TPAS) and divide it into the total sample size to get the mean $\overline{\text{TPAS}}$ for specified constructs (i.e., SCAs and SCBs). By switching prediction positions and applying the same process twice, we get two different $\overline{\text{TPAS}}$ at the end: one for the daughter and one for the mother. Ultimately, for each dyadic relationship, we consider the

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[21] Prediction response focuses on what one's dyad partner would say about their answers.

Table 4.3. Calculation method of the agreement score

Calculation Method: Measuring the Level of Agreement Between Daughters and Mothers: An Example from SCAs Scale

Dyad IDs (N)	SCAs Scale Item 1			SCAs Scale Item 2,3,4,5,6 (Note: The same process applied for each item.)			SCAs Scale Item 7			Sum of the Absolute Differences
	RD[24]	RM[22]	$\lvert RD-RM \rvert$ (for Item 1)	RD 2,3,4,5,6	RM 2,3,4,5,6	$\lvert RD-RM \rvert$ (for Items: 2,3,4,5,6)	RD	RM	$\lvert RD-RM \rvert$ (for Item 7)	$\sum \lvert RD-RM \rvert^{\text{for Item 1}} + \ldots\ldots\ldots + \lvert RD-RM \rvert^{\text{for Item 7}}$
Dyad 1	a[25]	b[23]	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	Dyad 1 agreement score
Dyad 2	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	Dyad 2 agreement score
Dyad 3	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	Dyad 3 agreement score
Dyad 4	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	Dyad 4 agreement score
Dyad 5	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	Dyad 5 agreement score
... (cont.)	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	... (cont.)
Dyad 146	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	a	b	$\lvert a-b \rvert$	Dyad 146 agreement score

Agreement score of the scale:

$$\frac{\sum \text{Dyad 1 agreement score} + \ldots\ldots + \text{Dyad 146 agreement score}}{146 \text{ (sample size)}}$$

*Alternatively, this mean score for SCAs scale can also be stated as: $\bar{X}_{\text{Real Agreement Score SCAs RD-RM}}$

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[22] RM refers to the real mother.

[23] For each dyadic relationship, according to **the response reported by the real mother**, the number **'b'** varies (i.e., differs) and ranges between $1 \leq$ and ≤ 5 on a 5-point Likert scale.

[24] RD stands for the real daughter.

[25] For each dyadic relationship, according to **the response reported by the real daughter**, the number **'a'** varies (i.e., differs) and ranges between $1 \leq$ and ≤ 5 on a 5-point Likert scale.

ratio of the daughter's TPAS to mother's TPAS based on the co-orientational model. If the ratio is found to be greater than 1, we accept that IGI occurs from daughters to mothers as indicated by the model, if it is less than 1, the model predicts IGI is from mothers to daughters. For SCAs and SCBs, we also compare final $\overline{TPAS}$ of daughters and mothers to make assumptions about the overall direction of IGI.

We further justify the co-orientational model approach by measuring dyad's subjective sustainable consumption knowledge[26] with four modified items out of nine available items from Flynn and Goldsmith (1999). Our motivation behind doing it was to see if there is any statistically significant match between SSCK scores and TPAS of dyads since those who are more knowledgeable on the sustainability and sustainable consumption should influence her partner.

In this respect, Flynn and Goldsmith (1999) provide a highly reliable subjective knowledge scale to test our theory. Both daughters and mothers were asked to indicate their agreement level to items like "*I think I know enough green products to feel confident when I make a purchase.*" After reverse coding two negatively stated items, summed scales (i.e., total scores) indicating the daughter's and mother's SSCK were created separately, where higher scores represented greater subjective knowledge. Total SSCK scale items are given in Table 4.4.

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[26] Basically, subjective knowledge may be regarded as impression of consumers' own knowledge and familiarity about consumption related topics.

Table 4.4. Subjective sustainable consumption knowledge scale items

SSCK
SSCK (1). I am familiar with the concept of "sustainability."
SSCK (2). I think I know enough about green products to feel confident when I make a purchase.
SSCK (3). I do not feel knowledgeable about sustainable consumption practices and sustainability overall (RC).
SSCK (4). Compared to most other people, I think I know less about sustainable consumption practices and sustainability overall (RC).
Note: RC - Reverse Coded.

Parent-Child Communication. Parent-child communication is the first independent variable of this study. We measure the communication between daughters and mothers, both objectively (i.e., observed communication effectiveness) and subjectively (i.e., self-reported communication effectiveness). This approach was undertaken to have two different and useful outcomes of PCC. Hence, it is an attempt to validate the co-orientational model's communication effectiveness construct.

On the one hand, the accuracy variable of the co-orientational model was utilized again in order to measure the objective communication between daughters and mothers because it was found to be a useful measure of the objective communication between two people in previous IG consumer research (e.g., Moore-Shay and Lutz, 1988; Mandrik et al., 2005, 2018). Correspondingly, each member of the dyad was asked to predict each other's responses for fifteen different items regarding SCAs and SCBs. For a given specific item, the absolute value of differences between one's prediction and the real (i.e., true) score of her partner's response indicated the prediction accuracy. Following the similar logic presented in Table 4.3, the equivalent process was applied to each item in SCAs and SCBs scales to

estimate $\overline{TPAS}$ of daughters and mothers, as discussed formerly. Naturally, lower prediction accuracy scores showed that there is less absolute value of differences between real vs. prediction positions and thus indicated more effective communication within mother-daughter dyads. Presumably, it should be noted that higher accuracy means each person knows better about what the other thinks, so it is plausible to say that some forms of effective communication must have taken place.

On the other hand, to measure the quality of subjective communication between daughters and mothers, a four-item scale consisting of self-reported measures were created by modifying the one-item from parent-adolescent communication scale (PACS) (Barnes and Olson, 1982, 1985) and using three-items from the subjective communication quality scale (Mandrik et al., 2005, 2018, p.103). Both daughters and mothers were asked to specify their agreement level to four measurement items like "*Over the years, my daughter/mother and I have established good communication.*" Larger values reported by them indicated the higher quality of subjective communication. Finally, total subjective communication summed scale scores were computed for daughters/mothers both separately and jointly. Table 4.5 lists the total subjective communication scale items used in this study.

Table 4.5. Parent-child communication scale items

PCC
PCC (1). I can discuss my consumption-related beliefs with my mother without feeling restrained or embarrassed.
PCC (2). My mother and I really understand each other well.
PCC (3). Over the years, my mother and I have established good communication.
PCC (4). There has been open communication between my mother and me over time.

Peer Influence. Peer influence is the second IV of this study. As formerly suggested by Meyer and Anderson (2000) and supported by Mandrik et al. (2005, p.818), it is rational to study the PI construct by examining the personality traits of daughters related to conformity[27]. In this respect, we focus on one well-validated personality trait, namely, Attention to Social Comparison Information (ATSCI) (Lennox and Wolfe, 1984). ATSCI reflects the degree (i.e., the extent) which individuals look to other people in determining their social behaviors (Lennox and Wolfe, 1984). In the context of this study, we recognize that other people can be seen as peer groups for college-age daughters who live far away from the family environment. Additionally, we acknowledge that ATSCI was previously utilized while measuring the consumer conformity of peers (e.g., Bearden and Rose, 1990; Mandrik et al., 2005, 2018). Therefore, thanks to its suitability, the PI construct of this study is measured by selecting six most appropriate items[28] out of thirteen available items from the ATSCI scale (Lennox and Wolfe, 1984). It is worth noting that Lennox and Wolfe (1984) created the ATSCI scale by shortening and reducing items from the self-monitoring scale, which was developed by Snyder (1974).

It needs to be clarified that PI was only measured for daughters, where they were asked to report their agreement level to measurement items like "*It is my feeling that if everyone else in a group is behaving in a certain manner, this must be the proper way to behave.*" Larger values reported by daughters in the six-item shortened version of the ATSCI scale reflects a greater

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[27] It is worth noting that higher conformity motivation should make a person more susceptible to be influenced by those around them. As university students live among their peers, those with higher conformity motivation should also show higher peer influence.

[28] Appropriately, selected six items are expected to reflect the extent that daughters look at their peer groups in determining their social and sustainable consumption related behaviors.

propensity to be affected by peers. In contrast, attitudes and behaviors of daughters who score low on the scale should be less susceptible to be influenced by peers and social environment. Finally, the total summed scale score of the PI construct for daughters was established based on given responses to each item. On the following, PI scale items are shown in Table 4.6.

Table 4.6. Peer influence scale items

PI
PI (1). My behavior often depends on how I feel others wish me to behave.
PI (2). It is my feeling that if everyone else in a group is behaving in a certain manner, this must be the proper way to behave.
PI (3). When I am uncertain how to act in a social situation, I look to the behavior of others for cues.
PI (4). If I am the least bit uncertain as to how to act in a social situation, I look to the behavior of others for cues.
PI (5). It is important to me to fit into the group I am with.
PI (6). I try to pay attention to the reactions of others to my behavior in order to avoid being out of place.

Control Variables. Primarily, four items were included as control variables to test the quality and compatibility of responses as well as to identify careless answers. These items are represented below.

i. **Control1:** "*Overall, I believe sustainability is extremely important.*"
ii. **Control2:** "*All things considered; my friends are very interested in sustainability.*"
iii. **Control3:** "*I like to follow my (mother's/daughter's/friend's)[29] lead in the way she/they practice(s) sustainable consumption.*"
iv. **Control4:** "*All things considered; I have a greater influence on my (daughter/mother) than she does on me when it comes to sustainable consumption attitudes, habits, and practices.*"

Suitable demographic variables (e.g., age of mothers and daughters, the annual income level of the family, education level of partners, and the number of children or siblings in the family) were also considered as control variables in this study.

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[29] According to the participant (i.e., daughter or mother), sentence types are altered in Control3 and Control4.

Table 4.7. Measures of constructs used and their source measures

Constructs used in this study	Original Measures and Descriptive Information					
Measures (# of Items)	Author(s) and Year	Scale(s) Name	Brief Description	Reliability (α)[30]	Research Sample	# of Items
Sustainable consumer attitudes (7) and sustainable consumer behaviors (8)	Antil (1984)	SRCB	It measures socially responsible consumption attitudes and behaviors	.88	690 members of a private consumer mail panel	40
	Roberts (1996)	ECCB	A multi-item scale that includes variety of behaviors related to the domain of ECCB	.89	1503 adult consumers in the U.S. (nationwide)	30
	Tanner and Wölfing Kast (2003)	Fair trade	It measures fair trade-related behaviors of consumers on green purchasing	.79	6500 urban and rural households living in the Bern, Sweeden	4
	Webb et al. (2008)	SRPD	A multi-item measurement construct on socially responsible consumption behaviors	.83	590 undergraduate and graduate students from three southeastern schools	26
	Haws et al. (2014)	The GREEN	It is developed to capture SCVs and SCAs	.89	National and diverse total sample of 1.317 individuals	6
	Feucht and Zander (2017)	PCE	It measures perceived consumer effectiveness and consumer attitudes on purchasing climate-friendly products	.80	6007 consumers in six different countries	5
	Song and Ko (2017)	SFCB	It is designed to understand behaviors of consumers towards sustainable fashion consumption	.85	328 residents of Seoul, South Korea	9
	Berkin (2018)	SCA and SCB	Two different multi-item scales that measure SCAs and SCBs by considering three pillars of sustainability	.79; .82	298 adults from 59 different countries	18
Subjective sustainable consumption knowledge (4)	Flynn and Goldsmith (1999)	Subjective knowledge	A short and reliable measure of the subjective knowledge construct. This scale is adaptable and suitable for testing different consumer theories	.91	1178 students from a southern university	9
Parent-child communication (4)	Barnes and Olson (1982, 1985)	PACS	A multi-item scale that is composed of two subscales: one scale measures the *openness* degree in PCC, and other measures *problems* in PCC	.87	National sample (U.S.) of 426 families	20
	Mandrik et al. (2005, 2018)	Subjective communication quality	It is developed to measure subjective communication quality between mothers and daughters	.80	190 mother-daughter dyads from U.S. and PRC	6
Peer influence (6)	Lennox and Wolfe (1984)	ATSCI	It measures how conformity of others (i.e., peers) influence consumption behaviors of individuals	.88	732 undergraduate students	13

[30] For each scale, reliability scores are reported based on the average Cronbach's Alpha value of total items. As can be seen from Table 4.7, all scales that we adapt from the research literature were previously found as reliable by exceeding the 70% threshold applied and standardized (see Nunnally, 1978) in social science research.

In summary, along with the use of agreement and accuracy variables offered by the co-orientational model, thirteen different multi-item scales and various items in them were either modified or adapted directly from the research literature to measure five constructs (i.e., SCAs, SCBs, SSCK, PI, and PCC) of this study. On the next page, Table 4.7 will provide a detailed overview of adapted/modified scales and measurement constructs.

CHAPTER 5   RESULTS

5.1.   Chapter Outline

The statistical results of this study are presented in this chapter. At first, the validity and reliability of constructs (i.e., SCAs, SCBs, SSCK, PCC, and PI) are examined (see Section 5.2). Afterward, four proposed hypotheses are analyzed using various statistical tests (see Section 5.3).

5.2.   Validity and Reliability

Initially, Analysis of a Moment Structures (AMOS) 25 software was utilized to conduct confirmatory factor analysis (CFA). We performed CFA to see the overall fit between our data and measurement model as well as to lay the groundwork for testing discriminant and convergent validity. Naturally, in the CFA, every construct was treated as a separate measure, where each observed variable (e.g., SCA1, SCA2, ...) was linked to its respective latent variable (i.e., unobserved variable) (e.g., SCAs). Thus, we created two similar CFA diagrams (i.e., two hypothetical measurement models) simultaneously: one for daughters' data set and one for mothers (see Figure 5.1 and Figure 5.2, next pages). Overall fit indices of daughters' hypothetical model (presented in Figure 5.1) are shown as follows: Goodness of Fit Index (GFI)= 0.97, Comparative Fit Index (CFI)= 0.93, Root Mean Square Error of Approximation (RMSEA)= 0.016, and Chi-Square Mean/Degree of Freedom (CMIN/DF)= 2.93, $p{>}0.05$. For mothers, same indices were found as GFI= 0.96, CFI= 0.94, RMSEA= 0.019, CMIN/DF= 2.90, $p{>}0.05$. These resulting indices suggest a good fit between
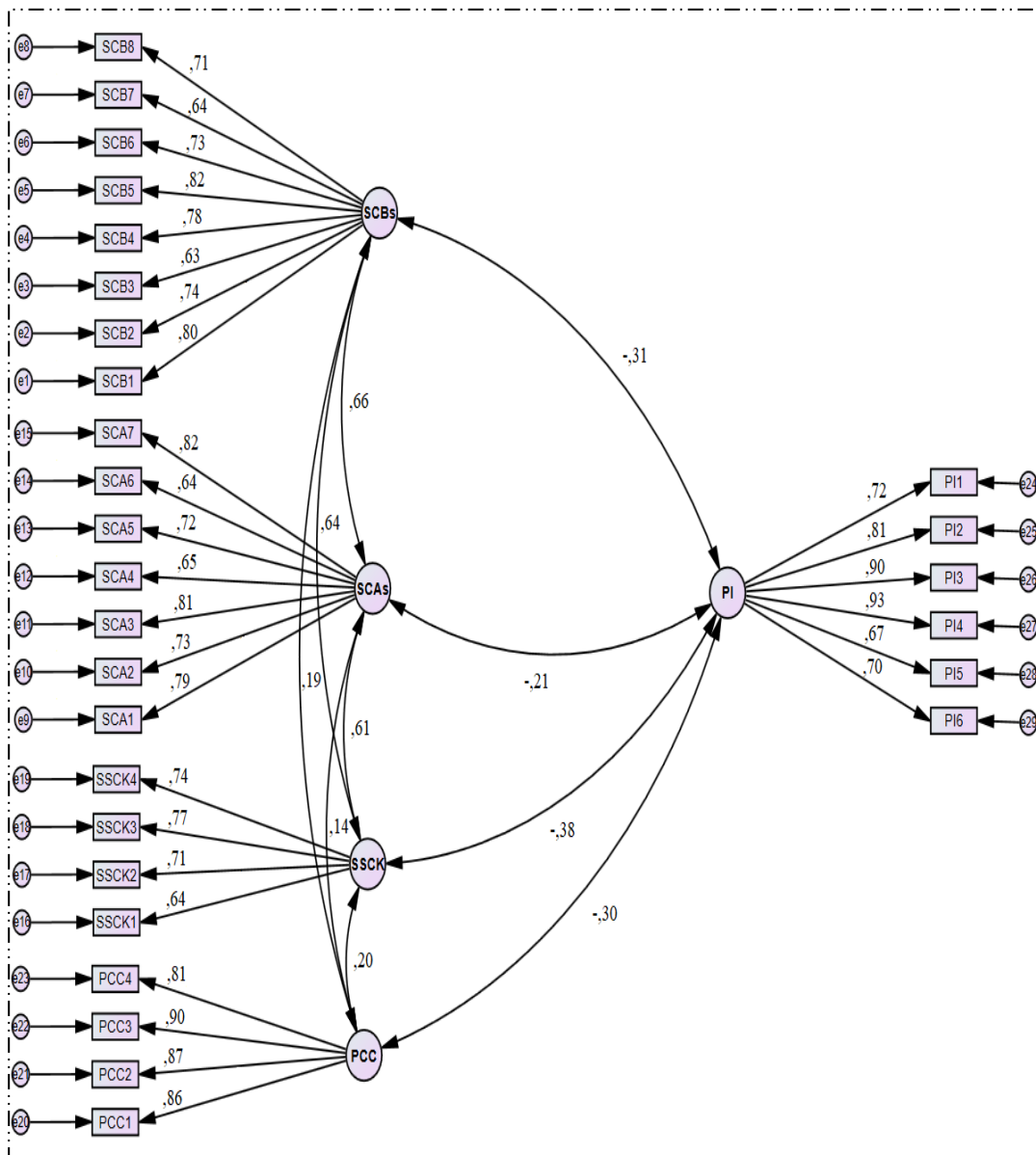
Figure 5.1. Standardized factor loadings and correlations between constructs: CFA model for daughters
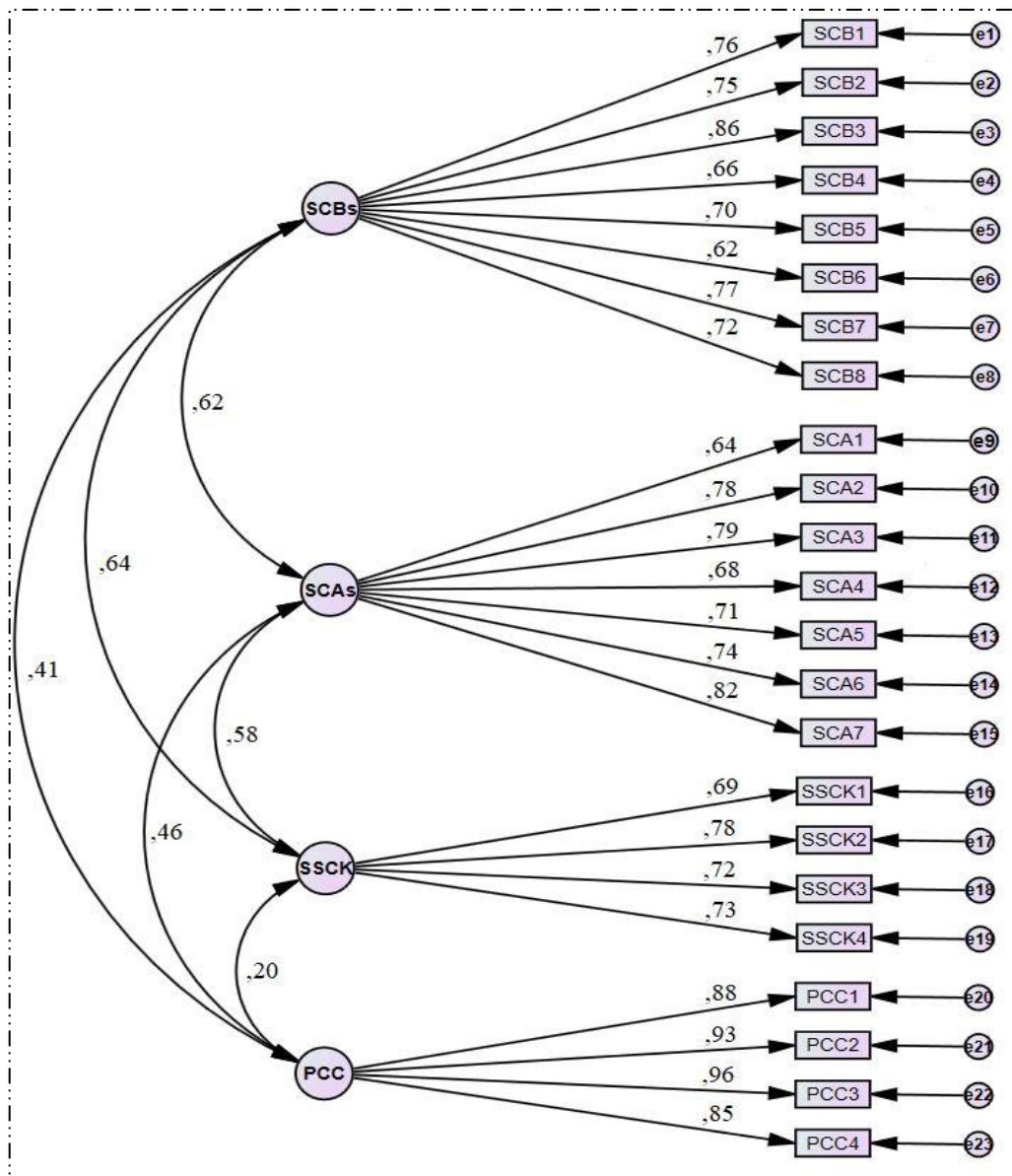
Figure 5.2. Standardized factor loadings and correlations between
constructs: CFA model for mothers

data and measurement models for both cases (see Hair et al., 2006, 2010; Kline, 1998)[31]. Besides, it is observable that all standardized factor loadings were found to be higher than the threshold limit of 0.60 (Hair et al., 2006) and were highly significant for both CFA models. This indicates that observed variables located in daughters' and mothers' hypothetical models sufficiently and significantly explained the variance of their respective latent variables (i.e., constructs).

Following the recommendations of Awang (2014), discriminant validity was checked. For that purpose, covariance paths were drawn between latent variables to show correlations between two exogenous constructs (refer to Figure 5.1 and Figure 5.2). For both hypothetical models, the correlation between any two constructs did not exceed the upper limit of 0.85. This finding supported the discriminant validity by suggesting that our constructs did not suffer from serious construct redundancy or multicollinearity problems.

Next, standardized factor loadings previously obtained in CFA models were further utilized to test the convergent validity and composite reliability (CR) of daughters' and mothers' constructs. Accordingly, average variance extracted (AVE) scores were computed as a rigorous (i.e., strict) measure of the convergent validity by using the formula given in Equation 5.1 (Fornell and Larcker, 1981, p.46).

$$AVE = \frac{\sum_{i=1}^{n}(\lambda_i)^2}{n} \qquad (5.1)$$

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[31] According to Hair et al. (2006, 2010) and Kline (1998), GFI>0.9; CFI>0.9; RMSEA<0.05; CMIN/DF<3 are threshold limit values that should be met to indicate a satisfactory fit between data and model.

where λ is the standardized factor loading, and n is the number of items in a construct. Moreover, CR scores were calculated based on the following equation provided by Fornell and Larcker (1981) and Raykov (1997), equivalently.

$$CR = \frac{\left(\sum_{i=1}^{n} \lambda_i\right)^2}{\left(\sum_{i=1}^{n} \lambda_i\right)^2 + \left(\sum_{i=1}^{n} \varepsilon_i\right)} \tag{5.2}$$

where λ is the standardized factor loading, n is the number of items in a construct, and ε is the error variance.

For given constructs, AVE scores of daughter participants (*N*= 146) ranged between 0.51 and 0.74, and CR scores varied from 0.80 to 0.92. Likewise, mothers' (*N*= 146) AVE scores fluctuated between 0.53 and 0.82, and CR scores changed from 0.82 to 0.94. These results show that the convergent validity and CR of all measurement constructs are at an adequate level by exceeding threshold limit values of AVE≥0.50 and CR≥0.70, suggested by Hair et al. (2010) (see Table 5.1, next page). Table 5.1 also presents scale and item descriptive statistics (i.e., Mean (out of 5), SD, SE) of this study.

Additionally, as can be seen above, Cronbach's alpha (α) scores were reported in Table 5.1 as a sign of internal consistency while measuring scale reliabilities. For daughter participants (*N*= 146), alpha values were as follows: SCAs(a_D): 0.84; SCBs(a_D): 0.85; SSCK(a_D): 0.79; PCC(a_D): 0.90; PI(a_D): 0.90. For mother participants (*N*= 146), SCAs(a_M): 0.85; SCBs(a_M): 0.86; SSCK(a_M): 0.81; PCC(a_M): 0.93 were observed, respectively. In both datasets, alpha coefficients were found to be higher than 0.70 for all measurement constructs. Thus, alpha values are accepted as reliable, a standard previously suggested by Nunnally (1978).

Table 5.1. Descriptive statistics, internal consistency, and
convergent validity of constructs

Constructs	Mean		S.D.		S.E.		α		CR		AVE	
	(D)	(M)	(D)	(M)	(D)	(M)	(D)	(M)	(D)	(M)	(D)	(M)
SCAs	4.15	4.21	.53	.56	.04	.04	.84	.85	.88	.89	.55	.55
SCA1	4.16	4.35	.83	.69	.06	.05	-	-	-	-	-	-
SCA2	4.30	4.32	.64	.68	.05	.05	-	-	-	-	-	-
SCA3	4.38	4.37	.68	.73	.05	.06	-	-	-	-	-	-
SCA4	3.92	4.15	.92	.79	.07	.06	-	-	-	-	-	-
SCA5	4.16	4.21	.62	.76	.05	.06	-	-	-	-	-	-
SCA6	3.84	3.88	.92	.93	.07	.07	-	-	-	-	-	-
SCA7	4.34	4.19	.74	.80	.06	.06	-	-	-	-	-	-
SCBs	3.73	3.76	.63	.66	.05	.05	.85	.86	.89	.90	.54	.54
SCB1	3.99	4.10	.90	.84	.07	.07	-	-	-	-	-	-
SCB2	3.95	3.95	.81	.82	.06	.06	-	-	-	-	-	-
SCB3	3.95	3.90	.93	.96	.08	.08	-	-	-	-	-	-
SCB4	3.50	3.53	1.0	.95	.08	.07	-	-	-	-	-	-
SCB5	3.75	3.66	1.0	1.1	.09	.09	-	-	-	-	-	-
SCB6	4.12	4.10	.98	.94	.07	.07	-	-	-	-	-	-
SCB7	3.40	3.45	.98	1.0	.08	.08	-	-	-	-	-	-
SCB8	3.20	3.43	.96	1.0	.09	.08	-	-	-	-	-	-
SSCK	3.78	3.36	.72	.77	.05	.06	.79	.81	.80	.82	.51	.53
SSCK1	4.20	3.77	.80	.82	.06	.06	-	-	-	-	-	-
SSCK2	3.77	3.32	.90	.98	.07	.08	-	-	-	-	-	-
SSCK3	3.46	3.06	1.0	1.1	.08	.09	-	-	-	-	-	-
SSCK4	3.69	3.29	.94	1.1	.07	.09	-	-	-	-	-	-
PCC	4.39	4.42	.67	.71	.06	.06	.90	.93	.92	.94	.74	.82
PCC1	4.39	4.51	.74	.75	.06	.06	-	-	-	-	-	-
PCC2	4.38	4.37	.78	.77	.05	.06	-	-	-	-	-	-
PCC3	4.44	4.38	.74	.79	.06	.06	-	-	-	-	-	-
PCC4	4.37	4.42	.77	.76	.06	.05	-	-	-	-	-	-
PI	2.52	-	.89	-	.07	-	.90	-	.91	-	.63	-
PI1	2.18	-	1.1	-	.09	-						
PI2	2.31	-	1.0	-	.08	-						
PI3	2.77	-	1.1	-	.09	-						
PI4	2.68	-	1.0	-	.09	-						
PI5	2.83	-	1.2	-	.10	-						
PI6	2.38	-	1.1	-	.09	-						

Besides utilizing standardized assessments of construct validity
and reliability, we performed an additional validity check using
Pearson's r. It is well-documented that income and education level
are two significant and positive predictors of pro-environmental
(i.e., responsible, sustainable) consumption behaviors in the

research literature (see Hines et al., 1987[32], p.5; Wang et al., 2014, p.157). Recognizing this, we wished to understand if our data show similar patterns with previous research findings. In this respect, Table 5.2 (see next page) shows the positive relationships between the mother's education level[33] ($r=.217$, $p<0.01$), income level of daughters ($r=.220$, $p<0.01$) and mothers ($r=.205$, $p<0.05$) on SCAs and SCBs. As in past research, these correlation coefficients suggest that individuals who have higher education and income levels are more likely to engage in sustainable consumption practices than less educated and lower-income ones.

We also checked the relationship between our first control variable and SCAs/SCBs. This control variable was intended to check the importance of sustainability for participants. As shown in Table 5.2, the more strongly that daughters and mothers believe in the significance of sustainability, they report higher SCAs/SCBs. Therefore, positive correlation coefficients between control1 and SCAs/SCBs were reported for both daughters ($r=.383$, $p<0.01$) and mothers ($r=.570$, $p<0.01$), respectively.

Finally, by utilizing the second control question, a noteworthy and possibly interesting GLM analysis was provided to demonstrate that the PI construct used yield valid results. The second control question was intended to check friends' interest in sustainability (FIS).

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[32] Hines et al. (1987) conducted a meta-analysis study on responsible environmental behaviors, where they showed significant, but marginally weak effects of education (average $r=.185$, SD=.12) and income (average $r=.162$, SD=.08) levels on pro-environmental behaviors by analyzing twenty-one literature studies for these two variables. It appears that their meta-analysis findings show close patterns with our correlation results which give us a confidence that our data is valid.

[33] In the correlation matrix (Table 5.2, next page), in terms of education, we only considered the education level of mothers since they had a wide range of available data and various education backgrounds, compared to daughters.

Table 5.2. Additional validity check: Using control variables and correlation coefficients

Correlations	SCAs and SCBs (D)	SCAs and SCBs (M)	Income	Education of M	Control1 (M)	Control1 (D)
SCAs and SCBs (D)	1	-	-	-	-	-
SCAs and SCBs (M)	.562**	1	-	-	-	-
Income	.220**	.205*	1	-	-	-
Education of M	.191*	.217**	.380**	1	-	-
Control1 (M)	.322**	.570**	.114	.148	1	-
Control1 (D)	.383**	.360**	.081	.088	.190*	1

Notes: *. Correlation value is significant at $p<0.05$; **. Correlation value is significant at $p<0.01$. Control1: Overall, I believe sustainability is extremely important.

For the measure of PI, Table 5.3 (see next page) demonstrates the effect of peer beliefs/influence on SCAs/SCBs (i.e., summed scale). Initially, two median splits were performed to turn continuous PI and FIS (i.e., control2) variables into categorical ones. In the analysis, PI and FIS median splits were taken as fixed factors and SCAs/SCBs as the dependent variable. Expectedly, we found that as there is stronger peer interest in sustainability and higher PI, daughters report greater SCAs/SCBs. On the other hand, daughters report relatively lower SCAs/SCBs when there is high PI, but lower peer interest in sustainability. Thus, the difference between means of two cases (i.e., (High PI/High FIS) vs. (High PI/Low FIS)) was found to be significant, $t(77) = 2.94$, $p<.00$. Taken together, these results, described above help us to establish an appropriate nomological network. This gives us confidence that our constructs are represented with reasonable validity by our measures.

Table 5.3. A GLM analysis: The effect of peer beliefs/influence on SCAs/SCBs

Fixed Factors (i.e., Categorical Variables)		n	Dependent Variable SCAs and SCBs (D)		95% Confidence Interval (CI)		Dif.	t-value (df)	Sig. (p)	F-value	Sig. (p)
PI Median Split	FIS Median Split		Mean (S.E.)	SD	Lower Bound	Upper Bound					
High PI (1)	Low FIS (0)	19	52.84 (1.67)	8.12	49.53	56.15					
High PI (1)	High FIS (1)	60	58.18 (.94)	6.46	56.31	60.04	-5.34	2.94 (77)	.00	10.81	.00

Notes: a) FIS: Friends interest in sustainability; b) In this table, only two cases: (1) High PI/Low FIS (2) High PI/High FIS and sig. relationships between them are reported; c) 1: High, 0: Low.

5.3. Hypothesis Testing

Testing H₁. H$_1$ deals with the existence of IG agreement after accounting for nominal effects. To examine this hypothesis, we test the raw level of IG similarity[34] between daughters and mothers against nominal effects[35]. Following Mandrik et al. (2005, 2018), nominal dyads[36] were constructed based on randomly selected daughters and mothers, and 250 randomizations were administered to obtain an average nominal effect value for a given construct, as in previous research. For randomizations, a macro tool in Microsoft Excel was utilized. Afterward, a normality test was conducted for each construct to see if nominal effects are normally distributed on a histogram (see Appendix G and Appendix H for histograms). Kolmogorov Smirnov (KS) normality test was not significant and greater than *p*>0.05 for both constructs, where kurtosis and skewness values were ranged within acceptable limits of normality (-2,2) (see George, 2011) and remained relatively small. This shows that distributions of nominal effects for both constructs may be regarded as normal and verifies our randomization results to be applied in further hypothesis analyses.

Subsequently, to test H$_1$, the t-test procedure was carried out in order to show significant differences between two means (i.e., real and nominal). For SCAs, significant differences between real vs. nominal means were observed, *t*(290) = 2.34, *p*<0.01. For SCBs,

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[34] The raw level of IG similarity (i.e., real mean agreement scores regarding seven items of SCAs and eight items of SCBs).

[35] Nominal effects (i.e., nominal mean agreement scores regarding seven items of SCAs and eight items of SCBs).

[36] As discussed in section 1.3, it is worth recalling that nominal dyads were created from real dyads, where only daughters were randomized for 250 times and these nominal daughters (ND) were regrouped with stable (i.e., real) mothers (RM).

t(290) = 2.41, *p*<0.01 was reported by comparing real and nominal means regarding IG similarity. Thus, real agreement between daughters and mothers were found to be significantly different and greater than the nominal effect for SCAs and SCBs, so H₁ is supported. Detailed results regarding H₁ appear in Table 5.4.

By following suggestions of Mandrik et al. (2005, p.824), we also tested nominal effects against zero to show the significance of using nominal effects which are different from zero. It was found that nominal effects were significantly larger than zero for both cases (see Table 5.4). This demonstrates that unlike previous IG consumer research that used zero as a reference point while testing IG agreement (e.g., Woodson et al., 1976; Heckler et al., 1989), the nominal dyad method offers a more precise measurement of IGI.

Table 5.4. IG similarity between daughters and mothers

Construct	Real M-D Similarity Mean (S.E.)	Nominal M-D Similarity Mean (S.E.)	Dif.	Real vs. Nominal				Nominal vs. Zero	
				F-value	Sig. (p)	t-value	Sig. (p)	t-value	Sig. (p)
SCAs	3.71 (.24)	4.42 (.16)	0.71	5.63	.01	2.34	.01	26.82	.00
SCBs	5.53 (.28)	6.41 (.22)	0.88	5.86	.01	2.41	.01	28.81	.00

Note: It is worth stating that **lower mean scores** indicate **higher IG similarity** for a given construct since mean scores are calculated based on the absolute value of differences. This suggests that mean of the real IG similarity between mothers and daughters is significantly higher than the nominal IG similarity.

Testing H₂ and H₃. H₂ predicts that IG similarity between daughters and mothers is positively related to communication effectiveness and H₃ expects that peer influence is negatively related to IG similarity. To test these hypotheses, we administered two different multiple regression analyses. In the first regression model, agreement (i.e., real M-D similarity regarding SCAs) was

taken as the dependent variable and PI, subjective communication, objective communication as independent variables. In the second regression model, real M-D similarity for SCBs was considered as the dependent variable, with PI, subjective communication, and objective communication as independent variables more time. Following Mandrik et al. (2005, p.824), it should be mentioned that we used "*the raw agreement and prediction scores*" in both regression models for the sake of simplicity. Results are shown in Table 5.5, next page. For both models, significant regression equations [37] are reported separately. For the effect of communication, it seems that both subjective and objective communication are positive predictors of SCAs ($\beta_{\text{Subjective Communication (SCAs)}}$ = .20, t-value = 2.55, $p<.01$; $\beta_{\text{Objective Communication (SCAs)}}$ = .33, t-value = 4.55, $p<.01$) and SCBs ($\beta_{\text{Subjective Communication (SCBs)}}$ = .20, t-value = 3.06, $p<.01$; $\beta_{\text{Objective Communication (SCBs)}}$ = .59, t-value = 9.62, $p<.01$). This indicates that these two predictor variables and the dependent variable (i.e., agreement regarding SCAs or SCBs) tend to move in the same direction, where more effective communication leads to more IG similarity. Therefore, H₂ is supported. It also appears that PI[38] is negatively related to real mother/daughter similarity for SCAs (β = -.23, t-value = -2.99, $p<.01$) and SCBs (β = -.18, t-value = -1.99, $p<.05$), suggesting the adverse effect of peers on real IG similarity, so H₃ is supported.

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[37] First Regression Model $_{\text{SCAs}}$: (F (3,145) = 18.46, $p<.00$) with an R^2 of .26 (i.e., R^2 refers to the explained variation in the dependent variable by predictor variables).

Second Regression Model $_{\text{SCBs}}$: (F (3,145) = 42.98, $p<.00$) with an R^2 of .46 which is more concrete.

[38] **A cross-check:** We utilized 3rd control question***** to cross-check quality and consistency of responses given to PI construct. It appears that PI and 3rd control question is positively correlated (r= .35, $p<.01$); whereas 3rd control question and real mother/daughter similarity for SCAs (r= -.29, $p<.01$) and SCBs (r= -.26, $p<.01$) are negatively correlated. This suggests that peer influence on daughters increases as they are more likely to follow sustainable consumption practices of their friends and this may cause a decrease in real mother/daughter similarity for SCAs and SCBs.
*: (I like to follow my friends' lead in the way they practice sustainable consumption.)

Table 5.5. Effects of peer influence, subjective communication, and objective communication

| Independent (i.e., Predictor) Variables (IVs) | First Multiple Regression Analysis | | | | | | | | Second Multiple Regression Analysis | | | | | | | |
| | Dependent Variable (DV) SCAs (Real M-D Similarity) | | | | | | | | Dependent Variable (DV) SCBs (Real M-D Similarity) | | | | | | | |
	β	S.E.	t-value	Sig. (p)	Collinearity Tolerance	VIF	F-value Sig. (p)	Model R²	β	S.E.	t-value	Sig. (p)	Collinearity Tolerance	VIF	F-value Sig. (p)	Model R²
PI	-.23**	.04	-2.99	.00	.82	1.20	18.46 (.00)	.26	-.18*	.04	-1.99	.05	.83	1.20	42.98 (.00)	.46
Subjective Communication	.20**	.04	2.55	.01	.80	1.26			.20**	.04	3.06	.00	.82	1.22		
Objective Communication	.33**	.04	4.55	.00	.95	1.05			.59**	.04	9.62	.00	.98	1.02		

Notes: a) *. Beta coefficient is significant at $p<0.05$; b) **. Significant at $p<0.01$; c) Objective communication is measured by prediction accuracy; d) For both multiple regression models, **the enter method** was employed; e) df1=3 and df2=145 for each regression; f) In the analysis, we summed up daughters and mothers communication scores to obtain one summed scale. This process was done for subjective and objective communication separately; g) For both regression models, we did not suffer from serious multicollinearity problems as all tolerance values were greater than .80 (Tolerance>.20 is the threshold value) and VIF(s) were ranged between 1.02 and 1.26 (VIF<4 is the acceptable limit), suggested by Hair et al. (2010); h) N=146.

It is worth showing that multiple regression results are additionally supported with bivariate correlation coefficients and presented as a matrix in Table 5.6, next page.

Table 5.6. Pearson correlation matrix: Testing H_2 and H_3

Correlations	SCAs Real M-D Similarity	SCBs Real M-D Similarity	PI	Subjective Communication	Objective Communication
SCAs Real M-D Similarity	1	.394** (.00)	-.328** (.00)	.372** (.00)	.383** (.00)
SCBs Real M-D Similarity	-	1	-.263** (.00)	.341** (.00)	.629** (.00)
Notes: *. Correlation value is significant at $p<0.05$; **. Correlation value is significant at $p<0.01$.					

Testing and Supporting H₄. H_4 focuses on the direction of IGI and examines the possible existence of reverse IG transfer occurring from daughter to mother. Exclusively, to test this hypothesis, we primarily conducted t-tests, where we compared $\overline{\text{TPAS}}_{(D)}$ vs. $\overline{\text{TPAS}}_{(M)}$ for SCAs and SCBs separately. The t-test result for SCAs is $t(290) = 7.02$ ($p<.00$) and $t(290) = 6.14$ ($p<.00$) for SCBs. Findings are shown in Table 5.7.

It should be stated that lower mean scores indicate higher prediction accuracy for a given construct because mean scores are computed based on the absolute value of differences, as stated formerly. In line with t-test results, it appears that mothers have significantly lower mean scores (i.e., higher prediction accuracy scores) than daughters. According to the co-orientational model, this indicates that mothers better predict their daughters' SCAs and SCBs; therefore, it is suggested that IGI is mainly from daughter to mother.

Table 5.7. Mean comparisons of total prediction accuracy scores

| Constructs | TPAS(D) | TPAS(M) | Dif. | TPAS(D) vs. TPAS(M) | |
	Mean (S.E.)	Mean (S.E.)		t-value	Sig. (p)
SCAs	5.85 (.30)	3.17 (.22)	2.68	7.02	.00
SCBs	7.54 (.34)	4.82 (.27)	2.72	6.14	.00
Note: TPAS. Total prediction accuracy scores; Dif. Mean differences; Sig. Significance					

This result is also demonstrated by a post-hoc analysis (see Figure 5.3). Using this analysis method, we checked significant differences between three group means. It appears that daughters transferring SCAs and SCBs to mothers are obviously more common than the other way around (72.6% vs. 22.6%). The difference between proportions is significant ($Z = 8.55$, $p<0.001$, $N= 146$), strongly suggesting the existence of reverse IG transfer. Hence, H$_4$ is jointly supported.

A validity check for this hypothesis was conducted using control questions. Mean scores of mothers ($M = 4.13$, $SD = .84$) who like to follow their daughters' lead in the sustainable consumption context are greater than daughters' mean scores who like to follow their mothers' lead – the other way around ($M = 2.72$, $SD = 1.24$). The difference between means is significant ($t(290) = 11.37$, $p<.00$). Noticeably, once again, it seems that mother participants are more likely to follow their daughters' lead when it comes to sustainable consumption, and this cross-check appears consistent with the findings obtained using the co-orientational model. What is more, a significant negative correlation coefficient was found between 3rd and 4th control questions ($r= -.39$, $p<.01$), as would be expected. That is, mothers contend that they have less influence on their daughters as they are more likely to follow their daughters' lead
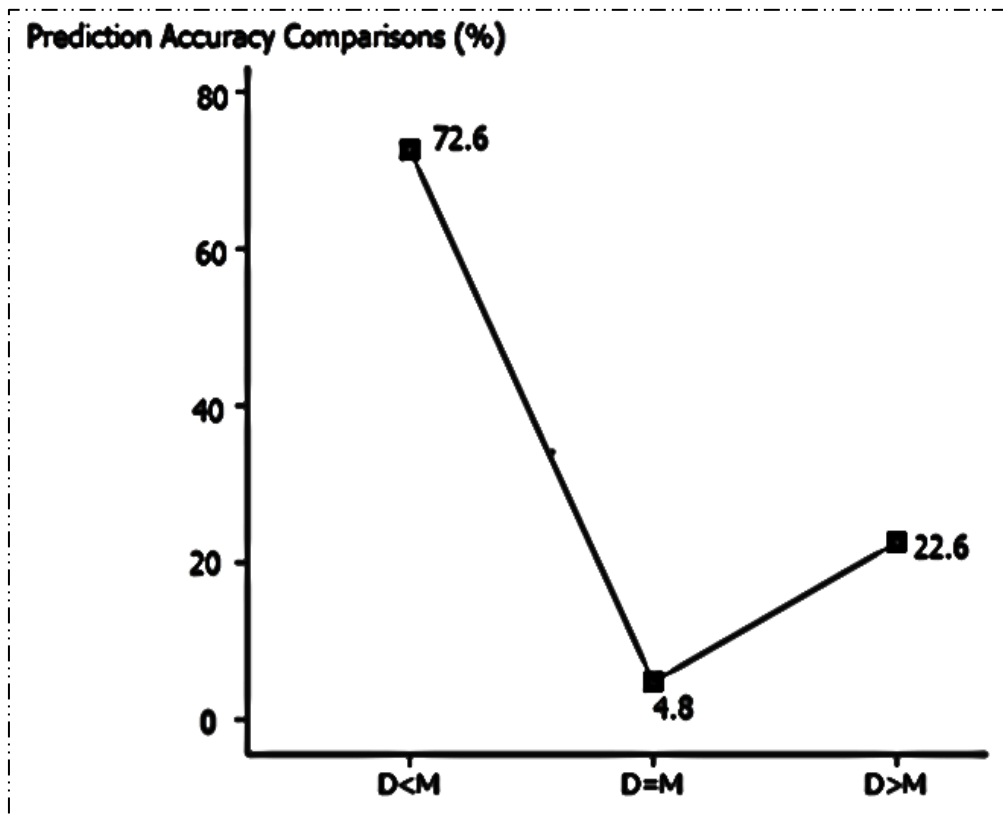
Figure 5.3. A post hoc analysis[39]: Comparison of prediction
accuracy scores for SCAs and SCBs

in the sustainable consumption frame. Nevertheless, why do
mothers follow their daughters when it comes to sustainable
consumption? Although not hypothesized nor conceptualized as a
research question due to lack of existing theoretical evidence, a
potentially interesting match/mismatch approach (see Table 5.8,
next page) is provided to further confirm the co-orientational model
outcomes, inspired from and stimulated by the idea of data

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[39] **D<M:** Mother's prediction accuracy score is larger than daughter's prediction accuracy score.
According to the co-orientational model, this implies that the IG transfer of SCAs and SCBs is chiefly
from daughter to mother.

D=M: Daughter's and mother's prediction accuracy scores are equal referring to the same amount
of transfer.

D>M: Daughter's prediction accuracy score is larger than mother's prediction accuracy score, which
means the IG transfer of SCAs and SCBs is mainly from mother to daughter, as recommended by
the co-orientational model.

triangulation[40] (see Patton, 1999; Carter et al., 2014) most often used in qualitative research. Triangulating across different quantitative approaches helped us to probe a specific reason behind the reverse IG transfer in this domain.

From Table 5.8, it can be observed that we initially compared subjective knowledge score of mother and daughter for each dyadic relationship, where we obtained three different outcomes under Case 1.

1. (D>M) = Daughter has greater total SSCK score than the mother.
2. (D=M) = They have an equal total SSCK score.
3. (M>D) = Mother has greater total SSCK score than the daughter.

Table 5.8. A comparison between subjective sustainable consumption knowledge scores and total prediction accuracy scores based on the real data: A novel match/mismatch approach

Dyad IDs (N)	$M_{SSCK_{score}}$	$D_{SSCK_{score}}$	Case 1	$M_{TPAS_{SCAs-SCBs}}$	$D_{TPAS_{SCAs-SCBs}}$	Case 2	Matches Case1=Case 2	Mismatches Case1≠Case2
Dyad 1	11	16	D>M	17	9	M>D		0
Dyad 2	12	17	D>M	10	11	D>M	1	
Dyad 3	14	19	D>M	12	14	D>M	1	
Dyad 4	12	19	D>M	12	10	M>D		0
Dyad 5	15	20	D>M	10	4	M>D		0
… (cont.)	…	…	…	…	…	…	…	…
Dyad 146	13	15	D>M	5	17	D>M	1	
Brief note: In the analysis, seven mother-daughter dyads were either found to have $M_{SSCK_{score}} = D_{SSCK_{score}}$ or $M_{TPAS_{SCAs-SCBs}} = D_{TPAS_{SCAs-SCBs}}$; hence, these cases were considered as mismatches.						%	58.9 86 matches	41.1 60 mismatches

In Case 2, we compared total prediction accuracy scores of mother and daughter, which was reported for SCAs and SCBs. It

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[40] Triangulation refers to the use of multiple test methods to get diverse viewpoints and comprehensive understanding of the data (Patton, 1999).

is worth recalling that lower TPAS means greater (i.e., higher) accuracy since TPAS is computed based on the absolute value of differences. In line with the co-orientational model methodology, three different outcomes were generated again.

1. (D>M) = IGI is from daughter to mother, which means the mother has higher prediction accuracy.
2. (D=M) = They have an equal total TPAS score.
3. (M>D) = IGI is from mother to daughter, which means the daughter has higher prediction accuracy.

Afterward, we analyzed whether Case 1 and Case 2 report same outcomes (e.g., (D>M) = (D>M); (D=M) = (D=M); (M>D) = (M>D)) or not. If both have the same results, we reported it as a match (i.e., 1). If not, we considered it as a mismatch (i.e., 0). Ultimately, 86 matches (58.9%) and 60 mismatches (41.4%) were recorded. The difference between proportions of matches and mismatches (58.9% vs. 41.4%) is significant ($Z = 3.04$, $p<0.0023$, $N= 146$) suggesting that the direction of IG transfer is mainly happening from the individual who has greater subjective knowledge on sustainable consumption to the partner who has less subjective knowledge.

Mandrik et al. (2005, p.827) highlighted that "it would be interesting to explore possible conditions that may afford influence mainly from children to parents." SCAs and SCBs appear to be one of these possible conditions for Turkish mother-daughter dyads. Specifically, it is rational to state that subjective knowledge of individuals about sustainable consumption may be one of the potential factors that can play a role in determining the direction of IG transmission. By complying with the co-orientational model approach, SSCK may provide a prospective answer for the reasons behind reverse IG transfer on sustainable consumption. As a

snapshot of this chapter, Table 5.9 shows all the main findings of this study.

Table 5.9. Hypotheses testing: Result summary

Hypotheses	Results
H₁. Intergenerational influence on sustainable consumption attitudes and behaviors exists between mothers and daughters after accounting for nominal effects.	Supported ($p<.01$)
H₂. Communication effectiveness between mothers and daughters is positively related intergenerational influence on sustainable consumption attitudes and behaviors.	Supported ($p<.00$ and $p<.01$)
H₃. Peer influence on daughters is negatively related to intergenerational influence on sustainable consumption attitudes and behaviors.	Supported ($p<.00$ and $p<.05$)
H₄. Intergenerational influence on SCAs and SCBs is greater from daughters to mothers than from mothers to daughters.	Supported ($p<.00$)

CHAPTER 6   GENERAL DISCUSSION AND CONCLUSIONS

6.1.   Chapter Outline

In this chapter, firstly, we provide a general discussion of statistical results obtained in this study by specifying various contributions, research implications, and comparisons with past research (see Section 6.2, 6.3, 6.4, 6.5). Next, plausible practical implications, several limitations, and noteworthy future research avenues are discussed respectively (see Section 6.6).

6.2.   Intergenerational Similarity in Sustainable Consumption

This study contributes to the growing body of research literature in sustainable consumer socialization by first showing the existence of IGI on 'fifteen' different SCAs *(7)* and SCBs *(8)* among mothers and their young adult daughters after accounting for nominal effects. Such a wide range of attitudes and behaviors related to sustainable consumption have not been studied in previous IGI research before. By testing H$_1$, we revealed that raw IG similarity for SCAs and SCBs is significantly larger than the nominal similarity (i.e., nominal effects that are used as a baseline comparison and help us account for potential external influences on dependent variable(s)) (t_{SCAs} = 2.34, p<.01; t_{SCBs} = 2.41, p<.01) (recall Table 5.4).

Consequently, we documented the existence of IGI in the pro-environmental consumption domain by showing IG transmission effects similar to results obtained in past research that has explored IGI on sustainable consumption (e.g., Grønhøj and

Thøgersen, 2009, 2012; Meeusen, 2014). However, the results obtained here go beyond. Past studies used raw agreement/consistency scores as an indicator of IG transmission. In other words, they did not account for nominal effects. But, would they have reported the same outcomes if they had taken '*nominal effects*' into consideration? In this respect, the present study advances the literature on IGI in terms of adapting different conceptual approaches, analysis methods, and measurement techniques. It also fills a critical recommended research need (see Grønhøj and Thøgersen, 2009, p.419, 2017, p.18; Moschis, 1988; John, 1999) by demonstrating the transfer of sustainable consumption practices in a different cultural/national context and within a specific dyad type, and providing a more valid quantitative measure of the actual intergenerational similarity.

6.3.   Communication Effectiveness and Intergenerational Influence

We observed higher IG similarity between mothers and daughters with an increase in communication effectiveness. Particularly, we found that greater subjective and objective communication (i.e., two different measures of communication effectiveness) significantly strengthened IG transmission of SCAs and SCBs. Indeed, subjective, and objective communication both had positive explanatory power in multiple regression models, yet the strength of their coefficient effects was different. Compared to subjective communication, effect sizes of objective communication were stronger for SCAs and SCBs (recall Table 5.5). Similarly, in different consumption domains, Mandrik et al. (2005) relied upon Chaffee and McLeod's (1968) framework using accuracy as an indicator of objective communication. They documented the

positive impact of communication effectiveness on IG transmission of brand preferences (β = .59) and five different consumption values (i.e., "*value consciousness, convenience orientation, prestige sensitivity, price-quality schema, and brand name-quality schema*") (β ranges from .33 to .49). The results obtained in the present study for the moderating effect of communication on IGI may be considered in line with these prior results.

We thus accepted that parent-child communication should be regarded as an important socializing factor for the IG transmission of SCAs/SCBs. In this regard, our finding may also be in parallel with Meeusen's (2014) environmental transmission study, where increase in the regular communication patterns between 15 year old Belgian adolescents and their parents caused more effective IG transmission of environmental concern by doubling the explained variance in the test model. However, we should note that Meeusen (2014) measured intra-family communication about the environment with a single item, so the low content validity may possess a problem in capturing the whole communication construct and it is impossible to ascertain its reliability since Cronbach's alpha (i.e., internal consistency) of single-item measures cannot be assessed. To overcome such limitations and to benefit from the added validity of a multi-trait, multi-method approach, we utilized a four-item scale to measure subjective communication between dyads, as well as the prediction accuracy variable of the co-orientational model as a ground measure of the objective communication by following suggestions of Moschis (1988, p.571) and Mandrik et al. (2018, p.96). To our knowledge, this is a first demonstration of a triangulated result that supports the communication effectiveness construct of the co-orientational model. Also, previous research has relied on the accuracy measure

to understand the level of communication effectiveness between dyad members. However, with the present study, we were able to go beyond by providing support for the validity of using accuracy as a measure of communication effectiveness.

Naturally, the interest of family members related to sustainable consumption may not be equally distributed. That is, one may be more concerned or involved in this topic than the other. For instance, in our case, owing to the presence of environmental education and sustainable consumption curriculums at universities, daughters may choose to initiate communication and discussions about these topics with their mothers, and this may, of course, vary depending on the cohesion and connectedness between them; however, these are just speculations. A detailed investigation is still needed to determine which factors play a role in the initiation of parent-child communication about pro-environmental consumption. In future investigations, extra assessment items such as "*amount of time mothers and daughters spent together*" can also be added to understand how communication patterns and frequency may affect IG similarity for the pro-environmental consumption domain. Moreover, the more specific the measure of communication, the more likely it is that effects on IGI should be observed.

6.4.   Peer Influence and Intergenerational Influence

Commonly, past pro-environmental IGI studies have reported small to moderate IG transmission effects, opening the door, and inviting research to look for the presence of other possible socialization agents in the IG transfer process of environmental consumerism. In this regard, they have suggested strongly that

future investigations be undertaken to identify these so-called 'other' agents (e.g., Grønhøj and Thøgersen, 2009, 2012; Meeusen, 2014, p.88). Taking their suggestions into account and prior IG consumer research (Mandrik et al., 2005), we showed the necessity of considering peers as one significant socialization agent influencing daughters' pro-environmental consumption attitudes and behaviors. Correspondingly, by analyzing H_3, we demonstrated that peer influence has significant explanatory power on the mother-daughter similarity for SCAs and SCBs. Notably, we found that stronger informational PI on daughters reduces the IG similarity between the mother and daughter. However, compared to SCAs, SCBs are more strongly influenced by peers since they are more observable and concrete.

Our study is not the first one that demonstrates the effects of peer influence on the IG similarity in consumer behavior realm. Previously, the negative influence of peers on the IG similarity for the "*prestige sensitivity consumption value domain*" was shown by Mandrik et al. (2005, p.825) while making use of the ATSCI scale, so our finding may be seen in parallel with them in this regard. Moreover, our findings are consistent and comparable with Collado's et al. (2017, 2019) works that documented the influence of peers (as a socialization agent) on children's sustainable attitudes and behaviors for the first time. Our results are also in line with the traditional view of Ward (1974) and Meyer and Anderson (2000) who advocated that parental influences would decrease with the increasing prominent role of peers in young consumers' lives.

Based on the H_3 assessment, it must be noted that we cannot neglect the important role of daughters' conformity to peers in this

process. Apparently, young-adult daughters may be keeping an eye on their peers' attitudes and behaviors in the college environment, and their peers may directly encourage them to engage in specific SCBs such as energy and water saving, recycling, eco-clothing, fair trade, sustainable giving, green purchasing, among others. In this regard, it is reasonable to expect that peers may even put social-pressure on their counterparts for the development of environmentally responsible behaviors, as suggested by Thøgersen (2006).

It is also possible that daughter participants of this study and their friends may share some "common interest" in the development of pro-environmental consumer identity (see Collado et al., 2017, p.29 for discussion). As one possible explanation, this interest may derive from the existence of sustainability-related student clubs or green campus initiatives in the college atmosphere, where they may undoubtedly and interactively learn and teach each other about their sustainable consumption practices. Owing to the presence of such groups, female students (i.e., daughter participants of this study) may choose to follow, copy, or imitate their peers' actions over their mothers, where stronger PI may weaken the IG similarity. On this matter, White et al. (2019, p.25) recently noted that if consumers see themselves as the member of a pro-environmental ingroup and if their ingroup members regularly engage in sustainable actions, they will be more likely to involve in sustainable practices. This may partially explain our GLM results (recall Table 5.3), where high PI/high FIS led to more SCAs and SCBs.

An alternative potential perspective is that this finding (H_3) may also possibly result from the collectivist culture of Turkey

(Triandis, 1995; http://hofstede-insights.com/country/turkey/). By the nature of collectivist cultures, Turkish daughters may merely attach a higher priority to friends' ("*group*") opinions over mothers' ("*individual*") opinions in this frame, and it may decrease the IG similarity.

6.5.   Direction of Intergenerational Influence

As mentioned previously, most of the pro-environmental IG consumer research accepts that family influence exists from parents to children in this domain (e.g., Grønhøj and Thøgersen, 2009, 2012, 2017). Presumably, they have reached this conclusion because their results show coherence with the social learning theory (Bandura, 1977), comply with cultural characteristics, and because of the average young age of their selected sample. Importantly, they found that children are significantly less committed to sustainable consumption practices than parents in their cultural context. These and other factors may explain why they support the forward IGI in this sphere; however, it is worth noting that they do not totally neglect the possibility of reverse IG transmission. In this regard, our findings differ from them. Essentially, we showed that IGI related to sustainable consumption is not necessarily and '*always*' from parents to children. Indeed, young consumers (i.e., young adult daughters) may also become catalysts for the transmission of pro-environmental consumer attitudes and behaviors, as shown here. Remarkably, our results show that reasonably a high amount of influence (for 72.6% of the cases) occurs from daughters to mothers in the sample we studied.

From this perspective, our results may be considered consistent with Ekstrom's (2007) qualitative research study which showed that teenagers may exert influence on their parents when it comes to engaging in recycling activities, eco-friendly actions, and purchase of sustainable products. It is also in line with Gentina and Muratore's (2012) work, which identified the existence of ecological consumer resocialization using semi-structured in-depth dyadic interviews between mothers and teenagers. Nevertheless, so far, the ecological consumer resocialization concept has been predominantly confirmed by qualitative research approaches. Unlike these studies, we validated this finding with quantitative analysis and identified subjective sustainable consumption knowledge as one potential factor that may contribute to the reverse IG transmission. The results of H_4 seem to suggest that compared to mothers, daughters may be under greater exposure to sustainable consumption topic in their environment. This may possibly result from the availability, presence, and frequent usage of the internet, new media tools, peers, student clubs, course curriculums, voluntary initiatives, and some other factors about sustainability in their environments (see Gentina and Singh, 2015, p.7583 for further discussion).

Further, from our findings with H_4, it appears that mothers see their daughters as an information source (e.g., role models/experts) who may encourage and show them the way in this domain (e.g., Bearden and Etzel, 1982). Admittedly, this is reasonable to expect since family is a dynamic social entity in which parents and children may mutually teach and learn from each other (see Easterling et al., 1995, p.533 for discussion). Broadly speaking, as supported by Şener and Hazer (2008), lack of environmental consciousness, missing structural facilities, and

poor overall sustainability education in Turkey, particularly between older generations, may explain why mothers may follow their daughters' vision in this process. However, at this point these are rudimentary assumptions that need to be tested. It also should be noted that we provided one possible explanation for the question of why mothers may see their daughters as role models who possess greater expertise in the sustainable consumption domain. We proposed that it may be related to daughters' higher level of SSCK, as indicated in this study. In this respect, our result complies with the study carried out by Bartkus et al. (1999), who noted the positive effects of subjective knowledge on environmental consumer behaviors.

6.6.   Implications, Limitations, and Future Avenues

As noted by Mandrik et al. (2018, p.100), not only consumer researchers but also practicing marketers have shown a big interest in understanding IGI since it may provide advantages and value for them in devising some practical applications (see also Ward, 1974 for discussion). One of our results robustly supports that daughters exert a greater influence (*for 72.6% of the cases*) than mothers when it comes to sustainable consumption. One potential practical implication arising from this would be that: marketers of sustainable brands operating in Turkey may want to consider pursuing a pull strategy via young-adult daughters by featuring them prominently as role models and regularly communicating them in new media tools and informative pro-environmental campaign strategies.

Moreover, researchers may take this study one step further and explore the various cases of which sustainable products and

brands are more prone to influence from (daughters to mothers) or (mothers to daughters) and which are more susceptible to peer influence. Presumably, knowing this information will help them to create more successful communication and positioning strategies in the market. It should be mentioned that results of this study may also be relevant for educators, change agents, non-governmental organizations, or policymakers who are interested in pro-environmental IG interaction processes in the family environment and want to promote or encourage sustainable consumption practices, particularly in similar transitional societies like Turkey.

With the current quantitative study, we only have shown evidence related to the family and peers in the IG transmission of sustainable consumption. Evidently, it was also found that $\overline{4.42}$ (SCAs) and $\overline{6.41}$ (SCBs) are the mean nominal effects that come from factors other than IGI. Even though these nominal effects[41] are significantly smaller than real IG effects (recall Table 5.4), it may yet be important to know what other factors may contribute to the IG similarity on SCAs and SCBs. Therefore, further quantitative and qualitative research approaches (e.g., in-depth interviews with participants (e.g., Moore et al., 2002, p.25) or focus groups with family members) are certainly needed to provide better insights into sustainable consumer socialization processes by taking other socialization agents (e.g., mass media, information and communication technologies, school, political or religious groups, and cultural factors) into account and looking at a wider variety of SCAs/SCBs. Admittedly, we reported only the existence

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[41] Smaller nominal effects may indicate that participants of this study are well aware of the sustainable consumption concept and familiar with related offerings in the market. This may also be partially supported by the question of SSCK1: (*I am familiar with the concept of sustainability*), where daughters ($\overline{4.20}$/5) and mothers ($\overline{3.77}$/5) reported relatively high familarity scores.

of IGI for the mother-daughter dyad. Alternatively, future research may replicate this study and examine whether IGI exists or differs according to gender and different dyad types (e.g., mother-son, father-daughter, father-son) in Turkish families, as well as in other cultural contexts.

We also recognize that the findings of this study may vary according to age groups of daughters and mothers. Hence, the comparison of different age stages is necessary in order to have a more clear understanding of the extent and direction of IGI in the sustainable consumption domain. One possible suggestion is that future research may expand our study by looking at different cognitive development stages of daughters (i.e., perceptual stage (3-7 years), analytical stage (7-11 years), and reflective stage (11-16 years) (see John, 1999, p.204 for consumer socialization stages)). Another potential limitation of this study is that survey data was collected using a convenience sampling approach from daughter participants who live in the same college; however, this may lead to a sampling bias. To avoid this from happening, regional variations and background differences (e.g., education) should be taken into account in future studies because it may be possible SCAs and SCBs vary among college students from different locales.

Finally, although there are few examples of cross-national sustainability relevant consumption, and in particular, IG research (e.g., Ando et al., 2015; Casaló and Escario, 2016; Katz-Gerro et al., 2019; Mandrik et al., 2018), more studies are surely called for to better understand a sustainable consumption IGI between different countries and contexts. Future research in similar

cultural contexts[42] is required to increase the confidence in our findings. Unlike existing quantitative and comparative cross-national studies in the area, it would also be interesting to explore pro-environmental/cross-national IGI incorporating the nominal dyad method as a basis of comparison to assess IGI effects (Mandrik et al., 2005). As another future work, it would be fruitful to conduct a detailed systematic review of multiple pro-environmental IG consumer studies with meta-analytic methods in order to show common effects or identify some reasons behind the variation of IG effect sizes. Moreover, longitudinal IG research on sustainable consumption with larger sample sizes is required in the research literature to examine IG effects on various sustainable consumption orientations over longer periods instead of utilizing the cross-sectional data, which is collected at one point in time. We believe that all these mentioned points would provide abundant avenues for future on sustainable consumption IG research.

As a final note, the findings here are encouraging in that they point out the role of IG cooperation, and that youth are playing a lead in helping to achieve a more sustainable society. However, even though the findings of this study point out the reverse IG transmission (i.e., young adult daughters as potential change agents) in the sustainable consumption domain, we should not simply push the whole liability to young adults and leave the burden to the next generations in building a sustainable future, but rather cooperation between generations and directive vision/guidance of parental, private and governmental entities are obligatory and should play equally central roles in the implementation of sustainable development initiatives and

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[42] By similar cultural contexts, we mean that various cultures that exhibit similarities with the characteristics of Turkish culture.

formation of a sustainable future. Decisively, even though we mentioned that SSCK may partially explain the reverse IG transfer process for mother-daughter dyads, more detailed qualitative and quantitative investigations are needed as future studies to explore some other factors behind the process of pro-environmental consumer resocialization. This may help us to draw boundary conditions of different situations, consumption cases, categories, or contexts that are prone to reverse IGI. As one potential research direction, roles of three different factors (i.e., "*cognitive status, exposure to nature, and socializing agents*") proposed in Easterling's et al. (1995, p.532) conceptual ecological resocialization model may further investigated with a comprehensive quantitative study to clarify reverse IGI in this sphere.

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APPENDICES

Appendix A – BAYEK Approval

ODTÜ
METU

22.02.2019

Scientific Research and Publication Ethics Committee (BAYEK)

Dear Oğuzhan Eşsiz,

The METU Northern Cyprus Campus Scientific Research and Publication Ethics Board has completed the evaluation of your application for ethics clearance of your research.

Title of the study:
Intergenerational Influence on Sustainable Consumption Attitudes and Behaviours

Your application has been approved and has been found to be in compliance with the code of ethics.

On behalf of the Scientific Research and Publication Ethics Committee, I wish you success in your research. Please feel free to contact to Committee should you have any queries reading this approval.

Yours truly,

Prof. Dr. Ali Cevat TAŞIRAN
Head of BAYEK

Appendix B – Incentive Tickets for Participants

No: 1

"Intergenerational Influence on Sustainable Consumption Attitudes and Behaviors" başlıklı yürütülen çalışma kapsamındaki katılımcılar için;

Orta Doğu Teknik Üniversitesi Kuzey Kıbrıs Kampüsü İçerisinde bulunan Pastane İşletmesine bağlı, üst kat yemekhane tabldot salonunda kullanılmak üzere;

1 tabldot yemek fişi

11 Mart 2019 – 2 Haziran 2019 tarihleri arasında geçerlidir.

Appendix C – Questionnaire for Daughters in English

-Survey Instrument (D)-

This research is carried out by Middle East Technical University Northern Cyprus Campus graduate student, Oğuzhan Eşsiz. The objective of the research is to understand sustainable consumption related attitudes and behaviors of mothers-daughters. Your participation is very important and valuable for the research to be valid. Participation is completely voluntary, and you are free to withdraw at any time. Completing the questionnaire will take 5 to 8 minutes. Your answers will be kept anonymous and will not be shared with anyone, except the project investigators. If you have any questions or concerns related to the research, feel free to contact Oğuzhan Eşsiz via essiz.oguzhan@metu.edu.tr. Thank you.

Dear Participant, before starting the survey, can you please provide your mother's e-mail address?

(_____)

*Please indicate your level of agreement with each of the following attitudes and behaviors;					
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
It is important for me to decrease my consumption (use less or avoid buying products) in order to minimize impacts on the environment.	1	2	3	4	5
It is important for me that products I use do not harm the environment.	1	2	3	4	5
I am concerned about wasting the resources of our planet.	1	2	3	4	5
I show a serious effort to consume less in order to preserve our resources for future generations.	1	2	3	4	5
I would describe myself as an environmentally responsible person.	1	2	3	4	5
I feel a sense of responsibility for small growers and workers in lower-income countries that produce the things I buy.	1	2	3	4	5
I believe it is a good idea to introduce labels indicating the climate-friendliness of products.	1	2	3	4	5
I am familiar with the concept of "sustainability."	1	2	3	4	5
I think I know enough about green products to feel confident when I make a purchase.	1	2	3	4	5

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I do not feel knowledgeable about sustainable consumption practices and sustainability overall.	1	2	3	4	5
Compared to most other people, I think I know less about sustainable consumption practices and sustainability overall.	1	2	3	4	5
Overall, I believe sustainability is extremely important.	1	2	3	4	5
I limit my use of energy such as (electricity, natural gas, fossil fuel consumption) to reduce my harm on the environment.	1	2	3	4	5
I avoid buying products that pollute the water.	1	2	3	4	5
I recycle the materials I use (metals, papers, and plastics).	1	2	3	4	5
I normally make a conscious effort to buy products from recycled materials.	1	2	3	4	5
I ride a bicycle or use public transportation in order to reduce the impact of air pollution.	1	2	3	4	5
I donate to charities clothes that I no longer wear.	1	2	3	4	5
I am willing to pay a higher price to buy environmentally friendly or sustainably sourced products.	1	2	3	4	5
When buying foods, I pay attention to "*fair trade labels*" indicating that people growing and working in food production are treated fairly.	1	2	3	4	5

*Please predict your mother's level of agreement with each of the following attitudes and behaviors;

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
My mother believes it is important to decrease her consumption (use less or avoid buying products) in order to minimize impacts on the environment.	1	2	3	4	5
My mother believes it is important that the products she uses do not harm the environment.	1	2	3	4	5
My mother is concerned about wasting the resources of our planet.	1	2	3	4	5
My mother shows a serious effort to consume less in order to preserve our resources for future generations.	1	2	3	4	5
My mother describes herself as an environmentally responsible person.	1	2	3	4	5
My mother feels a sense of responsibility for small growers and workers in lower-income countries that produce the things she buys.	1	2	3	4	5

My mother believes it is a good idea to introduce labels indicating the climate-friendliness of products.	1	2	3	4	5
My mother limits her use of energy such as (electricity, natural gas, fossil fuel consumption) to reduce her harm on the environment.	1	2	3	4	5
My mother avoids buying products that pollute the water.	1	2	3	4	5
My mother recycles the materials she uses (metals, papers, and plastics).	1	2	3	4	5
My mother normally makes a conscious effort to buy products from recycled materials.	1	2	3	4	5
My mother rides a bicycle or uses public transportation in order to reduce the impact of air pollution.	1	2	3	4	5
My mother donates to charities clothes that she no longer wears.	1	2	3	4	5
My mother is willing to pay a higher price to buy environmentally friendly or sustainably sourced products.	1	2	3	4	5
When buying foods, my mother pays attention to "*fair trade labels*" indicating that people growing and working in food production are treated fairly.	1	2	3	4	5

*Please indicate your level of agreement with each of the following items;

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
My behavior often depends on how I feel others wish me to behave.	1	2	3	4	5
It is my feeling that if everyone else in a group is behaving in a certain manner, this must be the proper way to behave.	1	2	3	4	5
When I am uncertain how to act in a social situation, I look to the behavior of others for cues.	1	2	3	4	5
If I am the least bit uncertain as to how to act in a social situation, I look to the behavior of others for cues.	1	2	3	4	5
It is important to me to fit into the group I am with.	1	2	3	4	5
I try to pay attention to the reactions of others to my behavior in order to avoid being out of place.	1	2	3	4	5

*Please indicate your level of agreement with each of the following items;

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I can discuss my consumption-related beliefs with my mother without feeling restrained or embarrassed.	1	2	3	4	5
My mother and I really understand each other well.	1	2	3	4	5
Over the years, my mother and I have established good communication.	1	2	3	4	5
There has been open communication between my mother and me over time.	1	2	3	4	5
I like to follow my mother's lead in the way she practices sustainable consumption.	1	2	3	4	5
I like to follow my friends lead in the way they practice sustainable consumption.	1	2	3	4	5
All things considered, my friends are very interested in sustainability.	1	2	3	4	5
All things considered, I have a greater influence on my mother than she does on me when it comes to sustainable consumption attitudes, habits and practices.	1	2	3	4	5

*Please answer the following questions;

How many siblings do you have?   What is your age?   What is your nationality?

_____   _____   _____

What is the highest level of education you have completed? If currently enrolled, the highest degree received.

    a)   High school

    b)   Bachelor's

    c)   Master's

    d)   PhD   Other_____ (please specify)

What was your total family income last year?

    a)   Under 50000₺

    b)   Between 50000₺ – 100000₺

    c)   Between 100000₺ – 200000₺

    d)   Over 200000₺   Other_____ (please specify)

Notification: Thank you for your participation! The online version of this survey will be sent to your mother's e-mail address via surveymonkey.com to have her participation.

Appendix D – Questionnaire for Mothers in English

-Survey Instrument (M)-

This research is carried out by Middle East Technical University Northern Cyprus Campus graduate student, Oğuzhan Eşsiz. The objective of the research is to understand sustainable consumption related attitudes and behaviors of mothers-daughters. Your participation is very important and valuable for the research to be valid. Participation is completely voluntary, and you are free to withdraw at any time. Completing the questionnaire will take 5 to 8 minutes. Your answers will be kept anonymous and will not be shared with anyone, except the project investigators. If you have any questions or concerns related to the research, feel free to contact Oğuzhan Eşsiz via essiz.oguzhan@metu.edu.tr. Thank you.

*Please indicate your level of agreement with each of the following attitudes and behaviors;

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
It is important for me to decrease my consumption (use less or avoid buying products) in order to minimize impacts on the environment.	1	2	3	4	5
It is important for me that products I use do not harm the environment.	1	2	3	4	5
I am concerned about wasting the resources of our planet.	1	2	3	4	5
I show a serious effort to consume less in order to preserve our resources for future generations.	1	2	3	4	5
I would describe myself as an environmentally responsible person.	1	2	3	4	5
I feel a sense of responsibility for small growers and workers in lower-income countries that produce the things I buy.	1	2	3	4	5
I believe it is a good idea to introduce labels indicating the climate-friendliness of products.	1	2	3	4	5
I am familiar with the concept of "sustainability."	1	2	3	4	5
I think I know enough about green products to feel confident when I make a purchase.	1	2	3	4	5
I do not feel knowledgeable about sustainable consumption practices and sustainability overall.	1	2	3	4	5
Compared to most other people, I think I know less about sustainable consumption practices and sustainability overall.	1	2	3	4	5
	1	2	3	4	5

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Overall, I believe sustainability is extremely
important.

I limit my use of energy such as (electricity, natural gas, fossil fuel consumption) to reduce my harm on the environment.	1	2	3	4	5
I avoid buying products that pollute the water.	1	2	3	4	5
I recycle the materials I use (metals, papers and plastics).	1	2	3	4	5
I normally make a conscious effort to buy products from recycled materials.	1	2	3	4	5
I ride a bicycle or use public transportation in order to reduce the impact of air pollution.	1	2	3	4	5
I donate to charities clothes that I no longer wear.	1	2	3	4	5
I am willing to pay a higher price to buy environmentally friendly or sustainably sourced products.	1	2	3	4	5
When buying foods, I pay attention to "*fair trade labels*" indicating that people growing and working in food production are treated fairly.	1	2	3	4	5

*Please predict your daughter's level of agreement with each of the following attitudes and behaviors;

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
My daughter believes it is important to decrease her consumption (use less or avoid buying products) in order to minimize impacts on the environment.	1	2	3	4	5
My daughter believes it is important that the products she uses do not harm the environment.	1	2	3	4	5
My daughter is concerned about wasting the resources of our planet.	1	2	3	4	5
My daughter shows a serious effort to consume less in order to preserve our resources for future generations.	1	2	3	4	5
My daughter describes herself as an environmentally responsible person.	1	2	3	4	5
My daughter feels a sense of responsibility for small growers and workers in lower-income countries that produce the things she buys.	1	2	3	4	5
My daughter believes it is a good idea to introduce labels indicating the climate-friendliness of products.	1	2	3	4	5
My daughter limits her use of energy such as (electricity, natural gas, fossil fuel consumption) to reduce her harm on the environment.	1	2	3	4	5

My daughter avoids buying products that pollute the water.	1	2	3	4	5
My daughter recycles the materials she uses (metals, papers, and plastics).	1	2	3	4	5
My daughter normally makes a conscious effort to buy products from recycled materials.	1	2	3	4	5
My daughter rides a bicycle or uses public transportation in order to reduce the impact of air pollution.	1	2	3	4	5
My daughter donates to charities clothes that she no longer wears.	1	2	3	4	5
My daughter is willing to pay a higher price to buy environmentally friendly or sustainably sourced products.	1	2	3	4	5
When buying foods, my daughter pays attention to "*fair trade labels*" indicating that people growing and working in food production are treated fairly.	1	2	3	4	5

*Please indicate your level of agreement with each of the following items;

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I can discuss my consumption-related beliefs with my daughter without feeling restrained or embarrassed.	1	2	3	4	5
My daughter and I really understand each other well.	1	2	3	4	5
Over the years, my daughter and I have established good communication.	1	2	3	4	5
There has been open communication between my daughter and me over time.	1	2	3	4	5
I like to follow my daughter's lead in the way she practices sustainable consumption.	1	2	3	4	5
All things considered, I have a greater influence on my daughter than she does on me when it comes to sustainable consumption attitudes, habits and practices.	1	2	3	4	5

*Please answer the following questions;

How many children do you have?   What is your age?   What is your nationality?

_____   _____   _____

What is the highest level of education you have completed? If currently enrolled, the highest degree received.

    a)   High school

    b)   Bachelor's

    c)   Master's

    d)   PhD   Other_____ (please specify)

What was your total family income last year?

    a)   Under 50000₺

    b)   Between 50000₺ – 100000₺

    c)   Between 100000₺ – 200000₺

    d)   Over 200000₺   Other_____ (please specify)

Appendix E – Questionnaire for Daughters in Turkish

-Araştırma Anketi (K)-

Bu araştırma Orta Doğu Teknik Üniversitesi Kuzey Kıbrıs Kampüsü yüksek lisans öğrencisi Oğuzhan Eşsiz tarafından yürütülmektedir. Araştırmanın amacı anneler ve kızlar arasındaki sürdürülebilir tüketim tutumları ve davranışlarını anlamaya çalışmaktır. Katılımınız bizim için çok değerli ve araştırmanın geçerliliği açısından büyük önem taşımaktadır. Araştırmaya katılım tamamen gönüllülük esaslı olup, istediğiniz zamanda araştırmadan çekilebilirsiniz. Size verilen anketi doldurmanız yaklaşık olarak 5 ila 8 dakikanızı alacaktır. Sorulara vereceğiniz cevaplar gizli olarak tutulacak olup, üçüncü kişiler ile paylaşılmayacaktır. Araştırma ile ilgili herhangi bir endişeniz veya sorunuz olduğunda, Oğuzhan Eşsiz ile essiz.oguzhan@metu.edu.tr üzerinden iletişime geçebilirsiniz. Teşekkürler.

Değerli katılımcı, anketi yanıtlamaya başlamadan önce, aşağıdaki alana annenizin e-mail adresini yazabilirmisiniz?

(_____)

*Lütfen aşağıda sıralanan tüketim tutumları ve davranışlarına hangi derecede katıldığınızı belirtiniz;

	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
Çevre üzerindeki etkimi en aza indirgemek için tüketimimi azaltmam (daha az kullanım veya gereksiz ürün satın almaktan kaçınma) benim için önemlidir.	1	2	3	4	5
Kullandığım ürünlerin çevreye zarar vermemesi benim için önemlidir.	1	2	3	4	5
Dünyamızın kaynaklarını boşa harcama konusunda endişeliyim.	1	2	3	4	5
Gelecek nesiller için kaynaklarımızı korumak amacıyla daha az tüketmek için ciddi bir çaba gösteriyorum.	1	2	3	4	5
Kendimi çevreye duyarlı ve sorumlu bir insan olarak tanımlarım.	1	2	3	4	5
Satın aldığım şeyleri üreten düşük gelirli ülkelerdeki işçiler için sorumluluk duygusu hissediyorum.	1	2	3	4	5

Ürünlerin üzerinde çevre ve iklim dostu olduğunu gösteren etiketleri tanıtmanın iyi bir fikir olduğuna inanıyorum.	1	2	3	4	5
"Sürdürülebilirlik" kavramına aşinayım.	1	2	3	4	5
Yeşil ürünler hakkında yeterince bilgi sahibi olduğumu düşünüyorum.	1	2	3	4	5
Sürdürülebilir tüketim ve genel olarak sürdürülebilirlik hakkında kendimi çok bilgili hissetmiyorum.	1	2	3	4	5
Diğer birçok insanla karşılaştırıldığında, sürdürülebilir tüketim ve sürdürülebilirlik hakkında daha az şey bildiğimi düşünüyorum.	1	2	3	4	5
Genel olarak, sürdürülebilirliğin son derece önemli olduğuna inanıyorum.	1	2	3	4	5
Çevreye verdiğim zararı azaltmak için (elektrik, doğal gaz veya fosil yakıt tüketimi) enerji kullanımımı sınırlandırıyorum.	1	2	3	4	5
Suyu kirleten ürünleri satın almaktan kaçınıyorum.	1	2	3	4	5
Kullandığım malzemeleri (metaller, kağıtlar, plastikler) geri dönüştürüyorum ya da geri dönüşüme yolluyorum.	1	2	3	4	5
Normalde geri dönüştürülmüş malzemelerden yapılan ürünleri almak için bilinçli bir çaba harcıyorum.	1	2	3	4	5
Hava kirliliğinin etkisini azaltmak için bisiklet sürüyorum ya da toplu taşıma araçlarını kullanıyorum.	1	2	3	4	5
Giymediğim ya da kullanmadığım kıyafetleri hayır kurumlarına bağışlıyorum.	1	2	3	4	5
Çevre dostu veya sürdürülebilir kaynaklı	1	2	3	4	5

ürünleri satın almak için daha yüksek bir fiyat ödemeye hazırım.

Gıda satın alırken, gıda üretiminde çalışan işçilerin haklı muamele gördüğüne işaret eden *"adil ticaret"* etiketlerine dikkat ediyorum.	1	2	3	4	5

*Lütfen aşağıda sıralanan tüketim tutumları ve davranışlarına annenizin hangi derecede katılacağını tahmin ediniz;

	Kesinlikle katılmaz	Katılmaz	Kararsızdır	Katılır	Kesinlikle katılır
Çevre üzerindeki etkisini en aza indirgemek için tüketimini azaltmak (daha az kullanım veya gereksiz ürün satın almaktan kaçınma) annem için önemlidir.	1	2	3	4	5
Kullandığı ürünlerin çevreye zarar vermemesi annem için önemlidir.	1	2	3	4	5
Annem, dünyamızın kaynaklarını boşa harcama konusunda endişelidir.	1	2	3	4	5
Annem, gelecek nesiller için kaynaklarımızı korumak amacıyla daha az tüketmek için ciddi bir çaba gösterir.	1	2	3	4	5
Annem, kendini çevreye duyarlı ve sorumlu bir insan olarak tanımlar.	1	2	3	4	5
Annem, satın aldığı şeyleri üreten düşük gelirli ülkelerdeki işçiler için sorumluluk duygusu hisseder.	1	2	3	4	5
Annem, ürünlerin üzerinde çevre ve iklim dostu olduğunu gösteren etiketleri tanıtmanın iyi bir fikir olduğuna inanır.	1	2	3	4	5
Annem, çevreye verdiği zararı azaltmak için (elektrik, doğal gaz veya fosil yakıt tüketimi) enerji kullanımını sınırlandırır.	1	2	3	4	5
Annem, suyu kirleten ürünleri satın almaktan kaçınır.	1	2	3	4	5
Annem, kullandığı malzemeleri (metaller, kağıtlar, plastikler) geri dönüştürür veya geri dönüşüme yollar.	1	2	3	4	5
Annem, geri dönüştürülmüş malzemelerden yapılan ürünleri almak için bilinçli bir çaba harcar.	1	2	3	4	5
Annem, hava kirliliğinin etkisini azaltmak için bisiklet sürer ya da toplu taşıma araçlarını kullanır.	1	2	3	4	5
Annem, giymediği ya da kullanmadığı kıyafetleri hayır kurumlarına bağışlar.	1	2	3	4	5
Annem, çevre dostu veya sürdürülebilir kaynaklı ürünler satın almak için daha yüksek bir fiyat ödemeye hazırdır.	1	2	3	4	5

Annem, gıda satın alırken, gıda üretiminde çalışan işçilerin haklı muamele gördüğüne işaret eden ''*adil ticaret*'' etiketlerine dikkat eder.	1	2	3	4	5

*Lütfen aşağıda sıralanan ifadelere hangi derece katıldığınızı belirtiniz;					
	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
Davranışlarım başkalarının benden nasıl davranmamı istediğine göre değişir ve şekillenir.	1	2	3	4	5
Bir gruptaki herkes belirli bir şekilde davranıyorsa, o şekilde davranmanın uygun bir davranış olacağını düşünürüm.	1	2	3	4	5
Sosyal bir durumda nasıl davranacağımı bilemiyorsam, diğerlerinin (arkadaşlarımın) davranışlarına bakarak kendime ipucu alırım.	1	2	3	4	5
Sosyal bir durumda nasıl davranacağıma dair ufak bir belirsizliğim varsa, diğerlerinin (arkadaşlarımın) davranışlarına bakarak kendime ipucu alırım.	1	2	3	4	5
Bağlı olduğum gruba uyum sağlamak benim için önemlidir.	1	2	3	4	5
Bir ortamdan dışlanmamak için arkadaşlarımın benim davranışlarıma olan tepkilerine dikkat etmeye çalışıyorum.	1	2	3	4	5

*Lütfen aşağıda sıralanan ifadelere hangi derece katıldığınızı belirtiniz;					
	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
Tüketim ve satın alma ile ilgili inançlarımı annemle kısıtlılık veya utangaçlık hissetmeden tartışabilirim.	1	2	3	4	5
Annem ve ben birbirimizi iyi anlıyoruz.	1	2	3	4	5
Yıllar içinde annem ve ben iyi bir iletişim kurduk.	1	2	3	4	5
Annem ve ben arasında açık ve net bir iletişim var.	1	2	3	4	5

Sürdürülebilir tüketim davranışları bağlamında, annemin liderliğini takip etmeyi seviyorum.	1	2	3	4	5
Sürdürülebilir tüketim davranışları bağlamında, arkadaşlarımın liderliğini takip etmeyi seviyorum.	1	2	3	4	5
Her şey göz önünde bulundurulduğunda, arkadaşlarım sürdürülebilirliğe çok ilgi duyuyor.	1	2	3	4	5
Her şey göz önünde bulundurulduğunda, sürdürülebilir tüketim tutumları, alışkanlıkları ve davranışları çerçevesinde, benim annemin üzerindeki etkim onun benim üzerimdeki etkisinden daha fazladır.	1	2	3	4	5

*Lütfen aşağıdaki soruları cevaplayınız;

Kaç kardeşiniz var?   Yaşınız?

_____   _____

Eğitim seviyeniz nedir?

    a)   Lise

    b)   Lisans

    c)   Yüksek Lisans

    d)   Doktora   Diğer_____ (lütfen belirtiniz)

Geçen yıl toplam aile geliriniz neydi?

    a)   50000₺ altında

    b)   50000₺ – 100000₺ arasında

    c)   100000₺ – 20000₺ arasında

    d)   200000₺ üstünde   Diğer_____ (lütfen belirtiniz)

Bilgilendirme: Değerli Katılımcı, zamanınız için çok teşekkür ederiz! Bu anketin online bir versiyonu, annenizin katılımı için bize sağladığınız e-mail adresine, surveymonkey.com aracılığı ile en kısa zamanda gönderilecektir.

Appendix F – Questionnaire for Mothers in Turkish

-Araştırma Anketi (A)-

Bu araştırma Orta Doğu Teknik Üniversitesi Kuzey Kıbrıs Kampüsü yüksek lisans öğrencisi Oğuzhan Eşsiz tarafından yürütülmektedir. Araştırmanın amacı anneler ve kızlar arasındaki sürdürülebilir tüketim tutumları ve davranışlarını anlamaya çalışmaktır. Katılımınız bizim için çok değerli ve araştırmanın geçerliliği açısından büyük önem taşımaktadır. Araştırmaya katılım tamamen gönüllülük esaslı olup, istediğiniz zamanda araştırmadan çekilebilirsiniz. Size verilen anketi doldurmanız yaklaşık olarak 5 ila 8 dakikanızı alacaktır. Sorulara vereceğiniz cevaplar gizli olarak tutulacak olup, üçüncü kişiler ile paylaşılmayacaktır. Araştırma ile ilgili herhangi bir endişeniz veya sorunuz olduğunda, Oğuzhan Eşsiz ile essiz.oguzhan@metu.edu.tr üzerinden iletişime geçebilirsiniz. Teşekkürler.

*Lütfen aşağıda sıralanan tüketim tutumları ve davranışlarına hangi derecede katıldığınızı belirtiniz;				

	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
Çevre üzerindeki etkimi en aza indirgemek için tüketimimi azaltmam (daha az kullanım veya gereksiz ürün satın almaktan kaçınma) benim için önemlidir.	1	2	3	4	5
Kullandığım ürünlerin çevreye zarar vermemesi benim için önemlidir.	1	2	3	4	5
Dünyamızın kaynaklarını boşa harcama konusunda endişeliyim.	1	2	3	4	5
Gelecek nesiller için kaynaklarımızı korumak amacıyla daha az tüketmek için ciddi bir çaba gösteriyorum.	1	2	3	4	5
Kendimi çevreye duyarlı ve sorumlu bir insan olarak tanımlarım.	1	2	3	4	5
Satın aldığım şeyleri üreten düşük gelirli ülkelerdeki işçiler için sorumluluk duygusu hissediyorum.	1	2	3	4	5
Ürünlerin üzerinde çevre ve iklim dostu olduğunu gösteren etiketleri tanıtmanın iyi bir fikir olduğuna inanıyorum.	1	2	3	4	5

"Sürdürülebilirlik" kavramına aşinayım.	1	2	3	4	5
Yeşil ürünler hakkında yeterince bilgi sahibi olduğumu düşünüyorum.	1	2	3	4	5
Sürdürülebilir tüketim ve genel olarak sürdürülebilirlik hakkında kendimi çok bilgili hissetmiyorum.	1	2	3	4	5
Diğer birçok insanla karşılaştırıldığında, sürdürülebilir tüketim ve sürdürülebilirlik hakkında daha az şey bildiğimi düşünüyorum.	1	2	3	4	5
Genel olarak, sürdürülebilirliğin son derece önemli olduğuna inanıyorum.	1	2	3	4	5
Çevreye verdiğim zararı azaltmak için (elektrik, doğal gaz veya fosil yakıt tüketimi) enerji kullanımımı sınırlandırıyorum.	1	2	3	4	5
Suyu kirleten ürünleri satın almaktan kaçınıyorum.	1	2	3	4	5
Kullandığım malzemeleri (metaller, kağıtlar, plastikler) geri dönüştürüyorum ya da geri dönüşüme yolluyorum.	1	2	3	4	5
Normalde geri dönüştürülmüş malzemelerden yapılan ürünleri almak için bilinçli bir çaba harcıyorum.	1	2	3	4	5
Hava kirliliğinin etkisini azaltmak için bisiklet sürüyorum ya da toplu taşıma araçlarını kullanıyorum.	1	2	3	4	5
Giymediğim ya da kullanmadığım kıyafetleri hayır kurumlarına bağışlıyorum.	1	2	3	4	5
Çevre dostu veya sürdürülebilir kaynaklı ürünleri satın almak için daha yüksek bir fiyat ödemeye hazırım.	1	2	3	4	5

Gıda satın alırken, gıda üretiminde çalışan işçilerin haklı muamele gördüğüne işaret eden "*adil ticaret*" etiketlerine dikkat ediyorum.	1	2	3	4	5

*Lütfen aşağıda sıralanan tüketim tutumları ve davranışlarına kızınızın hangi derecede katılacağını tahmin ediniz;

	Kesinlikle katılmaz	Katılmaz	Kararsızdır	Katılır	Kesinlikle katılır
Çevre üzerindeki etkisini en aza indirgemek için tüketimini azaltmak (daha az kullanım veya gereksiz ürün satın almaktan kaçınma) kızım için önemlidir.	1	2	3	4	5
Kullandığı ürünlerin çevreye zarar vermemesi kızım için önemlidir.	1	2	3	4	5
Kızım, dünyamızın kaynaklarını boşa harcama konusunda endişelidir.	1	2	3	4	5
Kızım, gelecek nesiller için kaynaklarımızı korumak amacıyla daha az tüketmek için ciddi bir çaba gösterir.	1	2	3	4	5
Kızım, kendini çevreye duyarlı ve sorumlu bir insan olarak tanımlar.	1	2	3	4	5
Kızım, satın aldığı şeyleri üreten düşük gelirli ülkelerdeki işçiler için sorumluluk duygusu hisseder.	1	2	3	4	5
Kızım, ürünlerin üzerinde çevre ve iklim dostu olduğunu gösteren etiketleri tanıtmanın iyi bir fikir olduğuna inanır.	1	2	3	4	5
Kızım, çevreye verdiği zararı azaltmak için (elektrik, doğal gaz veya fosil yakıt tüketimi) enerji kullanımını sınırlandırır.	1	2	3	4	5
Kızım, suyu kirleten ürünleri satın almaktan kaçınır.	1	2	3	4	5
Kızım, kullandığı malzemeleri (metaller, kağıtlar, plastikler) geri dönüştürür veya geri dönüşüme yollar.	1	2	3	4	5
Kızım, geri dönüştürülmüş malzemelerden yapılan ürünleri almak için bilinçli bir çaba harcar.	1	2	3	4	5
Kızım, hava kirliliğinin etkisini azaltmak için bisiklet sürer ya da toplu taşıma araçlarını kullanır.	1	2	3	4	5
Kızım, giymediği ya da kullanmadığı kıyafetleri hayır kurumlarına bağışlar.	1	2	3	4	5
Kızım, çevre dostu veya sürdürülebilir kaynaklı ürünler satın almak için daha yüksek bir fiyat ödemeye hazırdır.	1	2	3	4	5
Kızım, gıda satın alırken, gıda üretiminde çalışan işçilerin haklı muamele gördüğüne işaret eden "*adil ticaret*" etiketlerine dikkat eder.	1	2	3	4	5

	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle katılıyorum
	1	2	3	4	5
Tüketim ve satın alma ile ilgili inançlarımı kızımla kısıtlılık veya utangaçlık hissetmeden tartışabilirim.	1	2	3	4	5
Kızım ve ben birbirimizi iyi anlıyoruz.	1	2	3	4	5
Yıllar içinde kızım ve ben iyi bir iletişim kurduk.	1	2	3	4	5
Kızım ve ben arasında açık ve net bir iletişim var.	1	2	3	4	5
Sürdürülebilir tüketim davranışları bağlamında, kızımın liderliğini takip etmeyi seviyorum.	1	2	3	4	5
Her şey göz önünde bulundurulduğunda, sürdürülebilir tüketim tutumları, alışkanlıkları ve davranışları çerçevesinde, benim kızımın üzerindeki etkim onun benim üzerimdeki etkisinden daha fazladır.	1	2	3	4	5

*Lütfen aşağıdaki soruları cevaplayınız;

Kaç çocuğunuz var?   Yaşınız?

_____   _____

Eğitim seviyeniz nedir?

    a)   Lise

    b)   Lisans

    c)   Yüksek Lisans

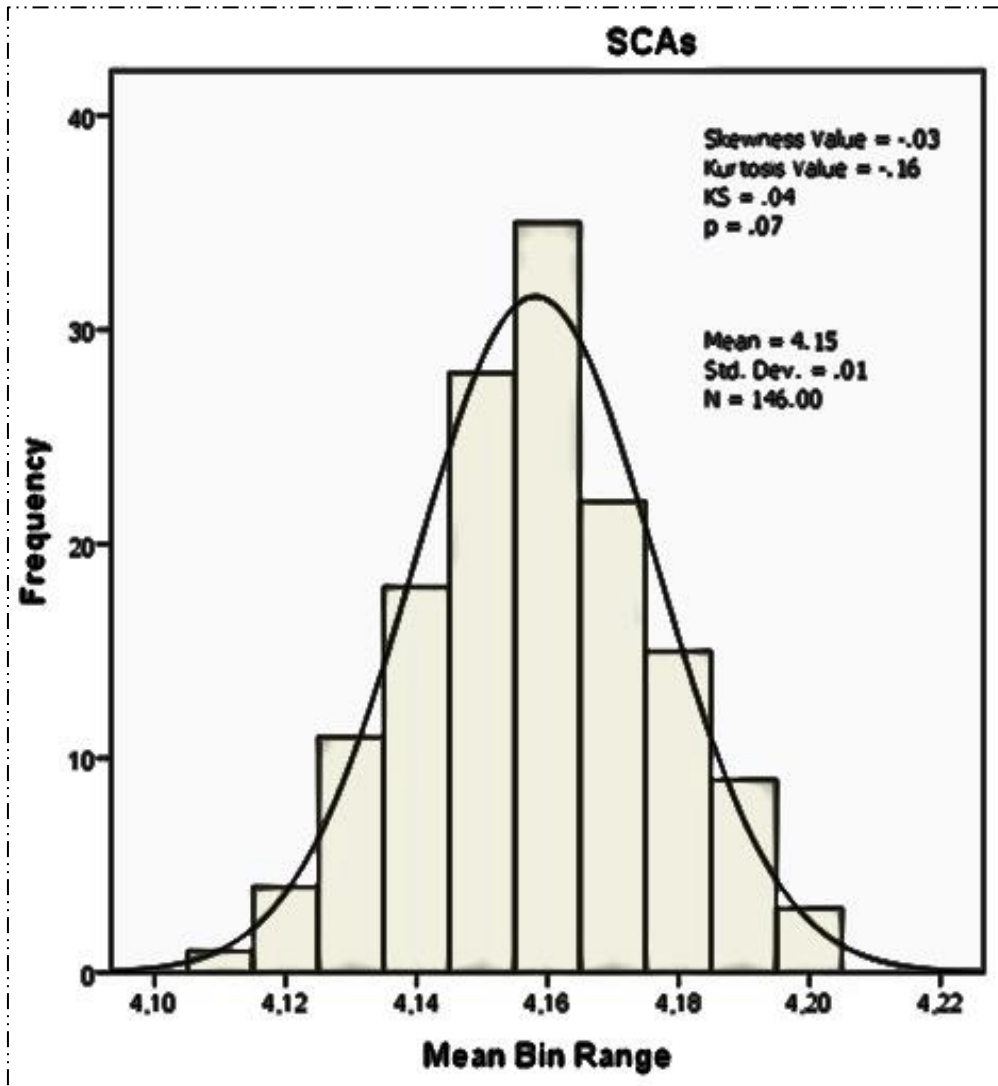   d)   Doktora   Diğer_____ (lütfen belirtiniz)

Geçen yıl toplam aile geliriniz neydi?

    a)   50000₺ altında

    b)   50000₺ – 100000₺ arasında

    c)   100000₺ – 200000₺ arasında

    d)   200000₺ üstünde   Diğer_____ (lütfen belirtiniz)

Appendix G – Histogram of the nominal effect: A normality test for SCAs

SCAs

Skewness Value = -.03
Kurtosis Value = -.16
KS = .04
p = .07

Mean = 4.15
Std. Dev. = .01
N = 146.00

Appendix H – Histogram of the nominal effect: A normality test for SCBs