CREATING CONSUMER PERSONALITY PROFILE BY USING 3M MODEL AND PARADOXES OF TECHNOLOGY

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ABSTRACT

The conducted study uses the Metatheoretical Model of Motivation and Personality along the Consumer Paradoxes of Technology concept to explore personality traits predictors of the consumers, purchasing technology-based products. The study proposes that consumer personality traits have significant effects on some consumer paradoxical behavior with technology. A research model was revealed that consumers, who demonstrate dependency and competency with technology, have a need for learning, technology consciousness behavior as well as interest in the purchase of new technology. The fulfillment of needs or desires and high engagement with technology is found in consumers who have the needs for material resources, demonstrate compulsive consumption, and technology purchase interests. However, none of the personality trait predictors correlate to new/obsolete consumer paradoxical behavior with technology-based products.

Keywords: 3M Model, Consumer Paradoxes of Technology, Technology-Based Products.

INTRODUCTION

The marketplace for consumer technology-based products is rapidly changing. This compels researchers to make suggestions by minimizing the purchase barriers of technological products. There is a need to re-examine the construct of use behavior in the context of technology-based services and products (Zolfagharian & Yazdanparast, 2019). Despite this growing trend in many areas of marketing, research continues to view consumers as information processing computers who make decisions based on their efforts to maximize consumers purchase powers with relationship to their personality traits but with little acknowledgement of consumers paradoxical behavior. Specifically, very little attention has been paid to the emotional barriers (Strebel et al., 2004) that may lead to consumer paradoxical behaviour with technology-based products. Previous research on the impact of emotions on decision making suggests that cognitive emotions arising from trade-off difficulty may bring about coping activities that alter decision outcomes (Luce et al., 2001; Mick & Fournier, 1998) increase stress and depression among users (Lee et al., 2014). Extensive research has been conducted on the correlates of personality traits in consumer behavior. One of the most popular is the Metatheoretical Model of Motivation and Personality, or as knowing as 3M Model. The 3M Model.

> *"Integrates diverse psychological theories and consumer behavior constructs into a coherent general theory of motivation and personality that more parsimoniously explains a broad set of phenomena" (Mowen, 2000).*

The 3M Model provides an integrated account of how personality traits interact with situations to influence consumer feelings, thoughts, attitudes and behaviors (Mowen, 2000). This

research contributes to the understanding of consumer technology-based products usage.

From a cognitive standpoint, the rapid pace of innovation in technology-based products complicates consumer purchase behavior. There is a limited stream of research on consumer paradoxes of technology. However, in a series of consumer behavior science studies, it was identified that the conflicts most likely arise when consumers are interested in a product that is ideally suited to their expectations. Therefore, a paradoxical behavior results from the conflict between consumer expectation and realities of product or service. Because of this conflicting structure, paradoxical behavior is regarded as weak, less stable, and less predictable behavior (Johnson et al., 2008) which leads to anxiety and stress (Weigart & Franks, 1989), and contradictory and inconsistent quality (Jarvenpaa & Lang, 2005). Mick & Fournier (1998) tested and identified eight paradoxes of technology-based products that are: control/chaos, freedom/enslavement, new/obsolete, competence/incompetence, efficiency/inefficiency, fulfills/creates needs, assimilation/isolation, and engaging/disengaging.

In order to excite the critical assessment of the 3M Model and Paradoxes of Technology concept, this research has two goals. First, the research presents the theoretical backgrounds of the 3M Model and Paradoxes of Technology, and explains how they can be utilized to organize personality traits and paradoxes of technology within a monological net. The second goal of the research is to illustrate the personality trait predictors of the consumer paradoxical behavior with technology-based products. In the next section we review the theoretical basis of the 3M Model and Paradoxes of Technology.

THEORETICAL BACKGROUND

The Metatheoretical Model of Motivation and Personality (3M Model)

The conducted study used the 3M Model, to provide an organizational structure to address the research problem. The 3M model, an integrated model of personality and motivation, involves the integration of four theoretical approaches, which are trait theories of personality, evolutionary psychology, hierarchical models of personality, and control theory. Contextually, the control theory framework illustrates the way personality traits of the consumers motivate their buying behavior. Furthermore, control theory assists in identifying the structure within which the traits are arranged and set. It also focuses on determining how personality traits influence consumers' buying behavior. Additionally, trait theories relating to personality offer the notion, states that reliable and valid scales can be developed for measuring consumers' purchasing behavior. The hierarchical models of personality suggested that the traits exist in a structure, wherein intangible and cross-situational trait develops situation-specific behavioral tendencies. This, in turn, affects the buying behavior of the consumers. Moreover, the concept of evolutionary psychology indicates that there is a need for basic elemental traits, which influences the buying behavior of consumers. Thus, it is apparent that the 3M Model suggests four levels set of traits, which is elemental, compound, situational, and category-specific surface traits (Mowen et al., 2007).

According to Mowen (2000) the 4-level traits hierarchy offers a standard for evaluating the behavioral systems, which have been considered to be the foundation of an individual's self-concept. In this context, these four levels comprising of elemental, compound, situational, and category-specific surface traits move to the specific from broad. The 3M model has been effectively used as a structure to examine different phenomena. For example, these involve consumer behavior consequences associated with the trait of online social shopping intention

(Kang & Johnson, 2015), online impulsive purchasing tendency (Sun & Wu, 2011), gambling activities (Fang & Mowen, 2009), visual product aesthetics (Mowen et al., 2009), intention to purchase online (Bosnjak et al., 2007), word of mouth communications (Mowen et al., 2007), volunteerism (Mowen & Sujan, 2005) and superstition (Mowen & Carlson, 2003).

The first level of the 3M Model hierarchy is the elemental traits, which are defined as

"Unidimensional underlying predispositions of individuals that arise from genetics and early learning history and represent the broadest reference for performing programs of behavior" (Mowen, 2000).

There are eight elemental traits of 3M Model, which have been examined in the study. There are introversion, openness to experience, conscientiousness, emotional instability, agreeableness, need for body resources, need for arousal, and need for material resources. According to Mowen (2000), it is important to examine each of the eight elemental traits because all the elemental traits can be included as control variables when evaluating the full hierarchical model. This is owing to the reason that elemental traits are being building blocks for the further traits with a concrete level.

The compound trait is the second level of the hierarchy, which is defined as

"The unidimensional predispositions that result from the effects of multiple elemental traits, a person's learning history and culture" (Mowen, 2000).

The compound traits are different from the elemental traits. As the latter offer general guidelines for selecting as well as expressing specific behaviors, the compound traits function distinctively to direct programs for the purpose of controlling model behavior (Mowen et al., 2007). Thus, the compound traits have been integrated into this particular study, as it reflects competitiveness as along with the need for learning.

The third level of the hierarchy is a situational trait, which is defined as

"The unidimensional predispositions to behave within a general situational context" (Mowen, 2000).

The pressure of the situational environment significantly impacts the situational traits. The communication of the situational context with more fundamental personality attributes results in the establishment of situational personality traits. It is also affected by both compound and elemental traits. Additionally, the situational traits support the development of more concrete surface traits (Mowen et al., 2007). In the conducted study, three situational traits were examined, which comprised compulsive consumption, technology consciousness, and value consciousness.

The fourth and the last level of a trait is the surface, which

"Delineate the programs of behavior that individuals run in order to complete tasks" (Mowen, 2000).

The first three levels of traits along with the stress of the context-specific environment influence the surface traits. Correspondingly, surface traits are highly predictive. Thus, the 3M Model suggested that a combination of traits from the different hierarchy levels influence the expected outcomes directly and/or indirectly (Mowen et al., 2007). In this study, three surface traits were developed, which are interest in new technology, technological product purchase interest and interest in a cultural experience. With respect to the interest in the buying of technological product, it is measured by the willingness to give extra effort to find new technological products (driving distance). It is also measured by a number of technological

products bought/owned in comparison with that of their friends or other acquaintances. The technological product information on a regular basis is considered to be a significant part of consumer life. To measure the consumer interest in new technology, we asked the consumers how they have enjoyed information about new technology. Besides, consumer behavior with technology-based product is also influenced by the socio-cultural environment (Mowen et al., 2007). In this context, we measured interest in cultural experience through the importance of cultural traditions, learning about other cultures, and the level of appreciation for another culture's environment.

The Conceptualization of the Paradoxes of Technology

The paradoxical behavior

In addition to the 3M Model, the study further integrated consumer paradoxes relating to technology. Despite to the definition of a paradox, the dictionary identifies as a sound argument yielding either a contradiction or a prima facie absurdity, there are antinomies where conclusions are mutually contradictory (Colman, 2015). The paradox is a conflicting statement, which is probably true or it is also perceived as a false and self-contradictory proposition. Although the paradox is self-contradictory, it is regarded as fundamentally valid or well-founded. Much research has been done within the philosophical science literature, Immanuel Kant stated that opposing viewpoints are important assets of human thoughts (Ware, 2014). In addition, the paradox is a simultaneous consideration of both truths as well as opposite assumptions along with the liking and disliking at the same time. Thus, in the conducted study, the paradox has been considered to be statement or proposition, which are absurd or self-contradictory.

Nevertheless, the paradox varies from related two concepts which are an inconsistency and dilemma. In this regard, inconsistency is a situation when two aspects are opposing and do not match. It is also when facts or specific aspects are not the same at varied instances. Additionally, the dilemma is the situation, wherein individual faces difficulties in selecting between two or more alternatives (Johnson et al., 2008).

Regardless the concept of paradoxical behavior, the literature related it to the notion of consumer emotional ambivalence. Correspondingly, our study supports the statement that emotional ambivalence is the relationship between purchase intention of the consumers and their related attitudes, which, in turn, causes delay and discomfort in buying of the technology-based products. The consumers' buying behavior is influenced by consistent, pervasive negative emotions, and uncertainties (Bee & Madrigal, 2013; Sparks et al., 2014).

Consumer paradoxes of technology

Consumer paradoxical behavior has been understated for years. Divergences between radical technological changes and consumer behavior are paradoxical themselves. Johnson et al. (2008) along with Strebel et al. (2004) stated that consumer paradoxes of technology are the experience of both conflicting positive as well as negative feelings by an individual relating to a specific technology. Technology paradox among the consumers indicates that they use technology-based products for the purpose of attaining the experience along with the useful benefits of the related products. At the same instance, they have the fear of being overwhelmed by the innovation (Mick & Fournier, 1998) and can result in consumer overload, anxiety, and even avoidance (Bawden & Robinson, 2009; Lee et al., 2014). Thus, the technology paradox

behavior can be stated as consumers' conflicting emotional expressions at the time of experiencing an innovative product (Kulviwat et al., 2007). We agree that this conflicting emotional expression at the time of technological adaptation relates to paradoxical behavior. It further involves the consumer learning process as a factor for averting paradoxical behaviors among them. As we have previously mentioned, consumer paradoxical behavior on technology-based products indicates the presence of ambivalent behavior or mixed emotions (Johnson et al., 2008; Mick & Fournier, 1998). For example, Sparks et al. (2014) found that attitudinal ambivalence weakens the predictive ability of attitudes on intentions to consume products. In addition, emotions are considered to be an unconscious stimulation system, which influences consumer towards potential opportunities and impossibility at the same time (Paulsen, 2006). The emotional value concerns the potential of a product or service to provoke consumers' feelings and sensational condition during their consumption experience (Candan et al., 2013; Sipila et al, 2017). Contextually, it can be stated that unconsciousness directly relates to their emotional behavior in case of consumer experience with technology.

In the conducted study, one of the key aspects has been to assess the concept of consumer paradoxes relating to the purchase of a technology-based products. Correspondingly, the consumer paradoxical behaviour with technology-based products can be assessed based on various dimensions. For instance, it has been notable from the outcome of varied researches that the consumers experience conflicting negative and positive emotions simultaneously regarding different aspects of the technology-based product (Johnson et al., 2008; Strebel et al., 2004). Besides, Mick & Fournier (1998) has also been found that the integration of technological products by the consumers leads to their enhanced enjoyment experience as along with the use of its benefits. The same authors pointed that it further helps in developing fear among the consumers of being overpowered by technological products. Thus, it can be analyzed that it involves the development of contradictory emotional reactions among the consumers while purchasing technology-based products (Kulviwat et al., 2007). It was also identified that the associations and disassociations between the technological adoption in products and the involved innovation in the products perceived by the consumers, leads to increased paradoxical behavior. We support the statement that consumer conflicting emotional behavior during the technological adaptation directly connects to their paradoxical behavior. To avoid the paradoxical behavior, consumers involve the learning process. Bransford et al. (2000) identified four factors significantly impact the consumer learning process: attention, motivation, emotions, and experiences.

In addition, it has been apparent that technology plays a supporting environment for encouraging creativity, whilst it also indicates the limitation of its utility (Edwards, 2010). For instance, although technology can significantly contribute towards the holistic development of the creativogenic market, but may limit stunt consumer improvement in usability of the products. It can further be evaluated that technology largely supports in filling the gap between the needs and actual possession of the utility or function in the products. However, there has also been a rising gap between the consumer preferences and the potential of technology (Un & Price, 2007). This gap were found in recent studies. For example, some study found direct relationship between number of consumer compliance and their dissatisfaction with technology (Reis et al., 2019). Contextually, this gap has been the major factor causing confusing as well as paradoxical behavior among the consumer with respect to the buying of technology-based products. In order to reduce the consumer paradoxical behavior, it is important to reduce this gap and offer meaningful along with purposeful technology to the consumers on the beginning phase of the

innovation (Un & Price, 2007), as well as providing smart customer experience with technology which directly enhances satisfaction and reduces perceived risk towards technology (Roy et al., 2017; Chuah et al., 2016).

Mick & Fournier (1998) have made a major contribution to the research field relating to the consumers' paradoxes of technology. The same authors further proposed a conceptual framework on the consumer paradoxes of technology-based products. Their major contribution has been with the proposal of seven paradoxes of technology consumers experience with technological products. These are control/chaos, new/obsolete, freedom/enslavement, competence/incompetence, fulfill needs/create needs, efficiency/inefficiency, and engaging/disengaging. In the literature Mick & Fournier (1998) and Johnson et al. (2008) described these seven paradoxes of technology which are illustrated below:

Control/Chaos:

Control in technology relates to regulation or order, whereas Chaos in technology indicates disturbance or confusion.

Freedom/Enslavement or Independence/Dependence:

Freedom in technology implies the involvement of autonomy or less restriction. On the other hand, Enslavement in technology indicates greater dependence or more limitations.

New/Obsolete:

New technology offers consumers with advanced and latest benefits of innovation, and in this context, Obsolete is the new technology, which is already or soon to be outdated after arriving at the market.

Competence/Incompetence:

Competence in technology implies the involved feelings of intelligence or effectiveness, and Incompetence in technology represents the involved feelings of unawareness or uselessness.

Efficiency/Inefficiency:

Efficiency in technology is the less time or effort employed in performing certain activities, and Inefficiency in technology is the providing of greater time or effort in the conduct of specific tasks.

Fulfill needs/Create needs:

Fulfill needs depicts that technology can help in the accomplishment of needs or desires, and Create needs, in this context, imply that technology can result in the development of awareness among the consumers were earlier unrecognized.

Engaging/Disengaging:

Engaging in technology can lead to involvement, flow, and activity, whereas Disengaging in technology can cause disruption, disconnection, and passivity.

The prior research assisted in providing a framework to determine how the consumer paradoxical behavior and the 3M Model can be implemented to express emotions of people towards technology-based products. Based on the conception created from the theoretical background, the exploratory research model in this study has been developed and will be discussed in the following paragraphs.

RESEARCH MODEL AND METHODOLOGY

The research model can be better comprehended with the discussion of the methodology used in the study, Figure 1. In this context, the study integrated a quantitative method for the purpose of attaining the desired outcome. Specifically, it involved conducting a questionnaire survey among consumers in the U.S. The primary data were collected from one hundred seventy-one respondents from a large western university to examine the research model. It was further ensured that all the participants remain anonymous. However, there were eleven participants, who did not provide completed answers. Thus, the data collected from one hundred sixty participants were considered.

In the study, sixty one items were considered for measuring elemental, compound, situational, and surface traits. In addition, the participants assessed their behavior based on the five-point Likert scales. In this study, the elemental traits of the research model were also measured by using credible and reliable secondary sources. Specifically, the research by Licata et al. (2003) was further used to measure introversion. The research findings of Mowen et al. (2004); Mowen & Carlson (2003) along with Mowen & Spears (1999) were used to measure conscientiousness. Furthermore, the research conducted by Mowen & Carlson (2003) was also used for measuring openness to experience. The studies by Mowen et al. (2004); Mowen & Carlson (2003), as well as, Mowen & Spears (1999) were used to measure the need for body resources, emotional instability, the need for material resources, and the need for arousal. In addition, Licata et al. (2003) were used to assess the last trait such as agreeable.

The research findings presented by Mowen et al. (2004) along with Mowen (2004) assisted in measuring the compound traits such as a competitiveness, while Mowen and Carlson (2003) study supported in assessing the need for learning. Our study measured situational traits as well. The questions based on health consciousness were used in measuring situational traits for technology consciousness. The study findings of O'Guinn & Faber (1989) were used for compulsive consumption (buying) and the study findings of Lichtenstein et al. (1990) were used to measure the value consciousness. These items are presented in Appendix A.

Regarding the surface traits, the study constructed the items to measure the interest in a cultural experience, interest in new technology, and interest in technological product purchase. Besides, the research outcomes from Johnson et al. (2008), Kulviwat et al. (2007), along with Jarvenpaa & Lang (2005), as well as, Mick & Fournier (1998) were used for measuring the seven paradoxes of technology. All of them are introduced in Appendix B.

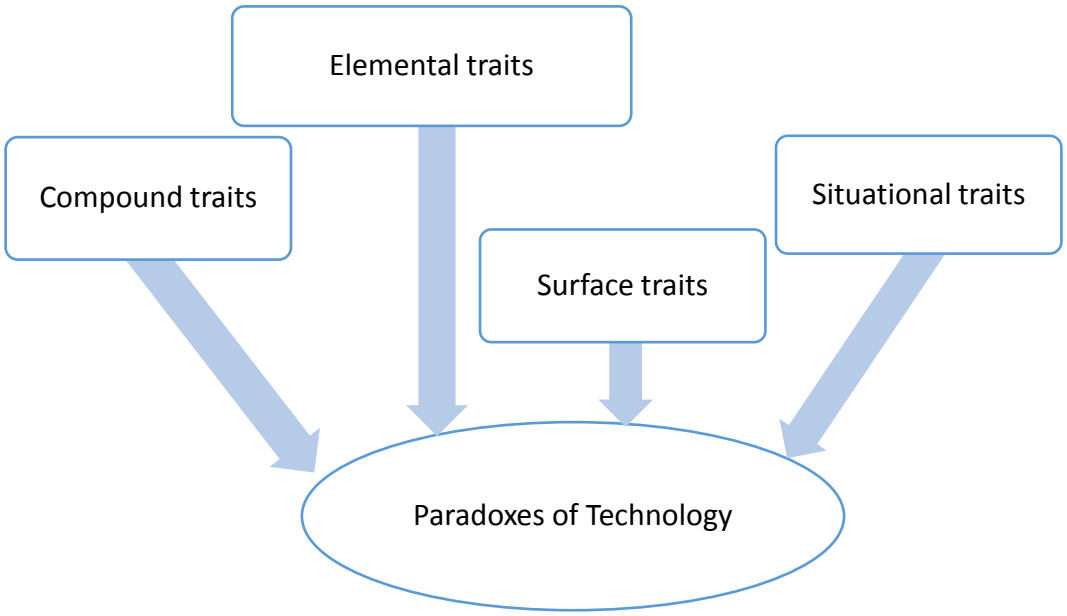

FIGURE 1
THE RESEARCH MODEL OF 3M MODEL AND PARADOXES OF TECHNOLOGY OF CONSUMER BEHAVIOR WITH TECHNOLOGY-BASED PRODUCTS

RESULTS

Corresponding to the determination of the specific methodology for the study, at first, exploratory factor analysis on all the measures was conducted. In addition, reliability calculations were used for determining the final scales. Moreover, the test for Cronbach's alpha (1951) was also used for conducting reliability analysis. Regression analysis was then employed to analyze the data. The standard analysis of variance procedure found in the structural equations modeling literature was also executed (Cohen et al., 2003).

Additionally, in the regression analysis, the dependent variables were control/chaos, freedom/enslavement, new/obsolete, competence/incompetence, efficiency/inefficiency, fulfills/creates needs, and engaging/disengaging. The results of this study focused on the elemental, compound, situational, and surface trait predictors of the seven paradoxes related to technology. The regression along with the significance indicated the impact of the consumer paradoxical technological behavior on sixteen personality traits, Table 1.

From the results of the regression analysis of the consumers' paradoxical technological behavior and personality traits (ANOVA, R, and Sig.), it is found that in the context of elemental traits, significant predictors of chaos/control paradox are conscientiousness (R=0.152, Sig.= 0.056) and agreeable (R=0.142, Sig.=0.076). Furthermore, the significant predictor of dependence/independence paradox is the need for material resources (R=0.237, Sig. =0.002). Significant predictors of competence/incompetence are introversion/extroversion (R=0.141, Sig. =0.079) and conscientiousness (R=0.256, Sig.=0.001). Moreover, the significant predictor of fulfilling/create needs and engaging/disengaging paradoxes is the need for material resources (R=0.254, Sig.=0.001 and R=0.333, Sig.=0.000). However, no significant predictors of new/obsolete and efficient/inefficient paradoxes were found in this research.

Table 1
RESULTS OF THE REGRESSION ANALYSIS OF CONSUMER PARADOXICAL BEHAVIOR WITH TECHNOLOGY-BASED PRODUCTS AND PERSONALITY TRAITS (ANOVA, R AND SIG.)

Personality traits/ Paradoxes of technology	Control/ Chaos	Dependence / Independent	New/ Obsolete	Competence/ Incompetence	Efficient/ Inefficient	Fulfill/ Create needs	Engaging/ Disengaging
Elemental traits:							
Introversion/extraversion	0.047 (0.562)	0.029 (0.719)	0.113 (0.159)	0.141 (0.079)	0.073 (0.366)	0.060 (0.453)	0.014 (0.867)
Conscientiousness	0.152 (0.056)	0.028 (0.727)	0.074 (0.353)	0.256 (0.001)	0.022 (0.786)	0.058 (0.470)	0.045 (0.579)
Openness to Experience	0.039 (0.623)	0.001 (0.988)	0.032 (0.686)	0.052 (0.509)	0.108 (0.175)	0.079 (0.325)	0.071 (0.379)
Need for Body Resources	0.098 (0.224)	0.076 (0.336)	0.097 (0.226)	0.016 (0.842)	0.078 (0.330)	0.067 (0.402)	0.123 (0.123)
Need for Material Resources	0.036 (0.657)	0.237 (0.002)	0.001 (0.988)	0.114 (0.154)	0.007 (0.926)	0.254 (0.001)	0.333 (0.000)
Emotional Instability	0.053 (0.512)	0.090 (0.255)	0.061 (0.443)	0.095 (0.234)	0.029 (0.720)	0.064 (0.428)	0.101 (0.206)
Need for Arousal	0.089 (0.272)	0.054 (0.503)	0.095 (0.235)	0.088 (0.271)	0.111 (0.167)	0.086 (0.286)	0.131 (0.103)
Agreeable	0.142 (0.076)	0.008 (0.920)	0.061 (0.448)	0.030 (0.708)	0.056 (0.485)	0.097 (0.223)	0.125 (0.118)
Compound traits:							
Competitiveness	0.063 (0.432)	0.001 (0.989)	0.021 (0.796)	0.032 (0.691)	0.006 (0.939)	0.134 (0.096)	0.112 (0.167)
Need for learning	0.120 (0.134)	0.146 (0.062)	0.061 (0.447)	0.163 (0.040)	0.043 (0.593)	0.069 (0.390)	0.143 (0.075)
Situational traits:							
Technology consciousness	0.212 (0.007)	0.215 (0.006)	0.128 (0.107)	0.237 (0.003)	0.196 (0.014)	0.181 (0.023)	0.100 (0.212)
Compulsive consumption	0.050 (0.536)	0.150 (0.057)	0.075 (0.345)	0.019 (0.812)	0.093 (0.247)	0.235 (0.003)	0.223 (0.005)
Value Consciousness	0.051 (0.526)	0.013 (0.869)	0.148 (0.066)	0.054 (0.505)	0.008 (0.917)	0.049 (0.542)	0.179 (0.025)
Surface traits:							
Technological product purchase interest	0.165 (0.038)	0.122 (0.123)	0.026 (0.742)	0.206 (0.009)	0.047 (0.560)	0.274 (0.001)	0.211 (0.008)
Interest in new technology	0.220 (0.006)	0.229 (0.004)	0.130 (0.103)	0.212 (0.008)	0.064 (0.422)	0.311 (0.000)	0.262 (0.001)
Interest in cultural experience	0.117 (0.145)	0.177 (0.025)	0.036 (0.650)	0.049 (0.542)	0.147 (0.067)	0.016 (0.845)	0.290 (0.000)

In the context of the two compound traits, it was found that competitiveness cannot assist in the prediction of any technological paradoxes, except fulfilling/create needs (R=0.134, Sig.= 0.096). At the same time, the need for learning is a significant predictor of dependence/independence (R=0.146, Sig.=0.062), competent/incompetent (R=0.163, Sig.= 0.040), and engaging/disengaging paradoxes (R=0.143, Sig.=0.075).

With respect to the situational traits, the conducted analysis suggested that technology consciousness has been relevant along with being effective as compared to other situational traits, such as value consciousness and compulsive consumption. It is further evaluated that

technology consciousness would assist in predicting the five technological paradoxes, which are control/chaos (R=0.212, Sig.=0.007), dependence/independence (R=0.215, Sig.=0.006), competence/incompetence (R=0.237, Sig.=0.003), efficient/inefficient (R=0.196, Sig.=0.014), and fulfill/create needs (R=0.181, Sig.=0.023).

The conducted regression analysis in the study revealed that all three surface traits, including technological product purchase interest (R=0.165, Sig. =0.038; R=0.211, Sig.=0.008), interest in new technology (R=0.220, Sig.=0.006; R=0.262, Sig.=0.001), and interest in cultural experience (R=0.117, Sig.=0.145; R=0.290, Sig.=0.000) are significant predictors of chaos/control, as well as, engaging/disengaging paradoxes. In addition, the results showed that there are no significant predictors of new/obsolete and efficient/inefficient paradoxes from the surface level traits. However, the significant predictor of fulfilling/create needs is technological product purchase interest (R=0.274, Sig. =0.001) and interest in new technology (R=0.311, Sig. =0.000).

DISCUSSION

The findings of this study are important because there is tremendous interest to consumer personality profile in new technology-based products. The study provided suggestions to technology-based producers and sellers in understanding of consumer paradoxical behavior. Based on the overall results, it has been apparent that the study aligns with the research model of the personality traits predictors of consumer paradoxical behavior with technology-based products. The results at first stated the relationship between elemental traits and seven consumer paradoxes of technology. In addition, the results indicated that consumers, who have control over technology and do not betray by technology, express agreeable behavior such as sympathy and kindness to others. The same consumers are well organized and able to complete a task successfully without wasting time and energy.

The results also revealed that there are considerable numbers of consumers, who depend on technological products and further limits their freedom by using technology. Our finding lined up with research statement that consumers expectations have shifted from patient entities into impatient entities of today where consumers expect and demand immediate access, response, and solution (Zolfagharian & Yazdanparast, 2019). A large contributor to this shifting behavior is the exponential growth in technology consumption so far and consumers will continue to experience dependency on technological products and bound their freedom. Additionally, these consumers need material resources. They are materialistic consumers and are more expected to enjoy buying expensive and luxurious objects. Our finding consists with the research of Cakarnis and D'Alessandro (2015), wherein they found a positive relationship between materialism and optimal financial product selection. They also identified that materialistic tendency positively influence consumer ability to identifying a high-value product. At the same instance, Thyroff and Kilbourne (2018) argued that materialists consume beyond their needs to reach a desired standard of living but consumer materialistic behavior does not relate to their product satisfaction. However, it can be evaluated in the current study that the expensive and luxurious technological products limit the freedom of the consumers, as they continue to reflect increasing dependency on technology.

The obtained results indicated that consumers with compulsive consumption illustrate high dependency and engagement with technology, as paradoxical behavior. This further indicates the outcome to be highly predictive. The results can be justified from the researches by Hooi Ting et al. (2011) and Peters (2009), which suggested that consumers with a high

dependency on technological products, such as smartphones tend to make evaluations on the basis of their experiences in determining future purchase behavior. They further found that experienced users' dependency on technological products has a direct effect on the formation of predictive expectations in future purchase behavior. In other words, consumers' high dependency on technology-based products is positively associated with their future potential purchase of these products.

The results, which have been obtained from the study, indicated that introverted consumers are more competent with technology. They need to offer less effort to make effective use of technology-based products and feel more technologically efficient. These consumers are shy and less interactive with other people, but the results showed that they are conscientious consumers. For introverted consumers, technology is a serious business, which does not involve a motive to be neglectful. The obtained results can be justified from the research outcome of Mowen et al. (2007), which indicated that conscientious is a significant predictor of the behavior in carefully sending along with receiving information. Contextually, these consumers in the conducted study are introverts.

From the obtained results of the study, it can be analyzed that consumers, who perceive that technology provides solutions to many problems and does not create new needs are highly materialistic. The reason behind this is that this type of consumer prefers to buy the newest technological products. When their needs are sufficed, they move on to find new technological products to fulfill their higher demand. This indicates a significant positive relationship between materialistic tendencies as well as optimal technology, which help the consumers to solve problems. This conclusion provides a strong correlation with the findings within this research. It leads that a materialistic consumer may also reflect a higher preference to buy and use technological products if they view their consumption of the products to be contributing positively to their personal possessions. In this regard, possessiveness is considered to be an attribute fundamental to materialistic behaviors and consumption styles (Huhmann & McQuitty, 2009; Dittmar et al., 2007).

The findings of the study also indicated a strong positive relationship between consumers with the trait of material resources needs as well as engaging/disengaging paradoxical behavior with technology. This can be analyzed by stating that consumers having a direct attachment with money and material possessions perceive that technology-based products help them to be better involved and active in life. These individuals further enjoy the use of technology-based products more than others. This suggests that their needs for material resources help them to be engaged with technology, which in this study is the new technological product.

However, measurement analysis revealed that the traits associated with openness to experience, need for body resources, emotional instability, as well as need arousal, do not influence consumer paradoxical behavior with technology. For instance, why would emotional instability not be a predictor any of the seven paradoxes of technology? One possible explanation is that the respondents were not honest at the time of answering the sensitive questions such as *"I am moody than others"* or *"I am more touchy than others"*. This suggested that individuals apply different decision frame to evaluate emotional instability, which is based on moral intelligence rather than merely rational. It is apparent that the need for arousal is not a predictor of consumer paradoxical behavior with technology either.

The second set of significant findings of the study are the relationships between compound traits and the seven consumer paradoxes of technology. The results suggested that competitiveness is not a predictor of the most paradoxes of technology. However, the study

found that consumers, who depend significantly on technology-based products, more competent with technology, and feel enjoyment along with self-reinforcement with technology, demonstrate the need for learning. They consider themselves intellectual consumers with the ability to search for information.

The third level of the 3M Model is situational traits. It is notable that technology consciousness is the predictor for five out of the seven paradoxes of technology. This indicates that consumers with a strong appreciation for technology and good technological skills do not perceive to be betrayed by technology as well as experience satisfaction at the time of using a high technological version of a product. Nevertheless, the same consumers depend on the technology and they will buy technological products that are easy to use.

In addition, the most concrete level of the 3M Model is the surface-level disposition. As we mentioned before, the surface traits are highly specific dispositions, which results from the effects of the elemental, compound, and situational traits as well as from the press of the context-specific environment (Mowen et al., 2007). Thus, with respect to the subject matter of the study, all three surface personality traits are directly related to the consumers' technological paradoxical behavior. This indicates that consumers, who have a greater interest in the purchase of a technological product, including an interest in new technology and cultural experience, have higher tendency to engage with technology. By engaging with technology-based products, the same consumers enjoy and feel helps in improving their standard and quality of living. Moreover, the results suggested that consumers with a higher interest in new technology have a high competence with the technology-based products. These consumers have the tendency to determine new technological product to fulfill their needs.

However, some of the findings are contrary to initial expectations. For instance, the study indicated the needs for body resources as along with the needs for arousal are not significant predictors of any paradoxes of technology. In this context, Mowen (2000) identified the need for body resources as an enduring desire to enhance and protect one's own physical resources. In the conducted study, these elemental traits do not correlate with technology paradoxes. This lack of significant findings suggests that body resources may be a more complex trait that requires more research. It may also suggest consumer attitudes toward technological products are stronger and more difficult to influence which is a self-paradox.

CONCLUSION

Limitations and Future Research

The conducted study has been one of the initial efforts to understand consumer paradoxical behavior with technology-based products. The study adopted the framework of the 3M Model of motivation as well as personality to analyze consumer paradoxical behavior with technology. These findings lead to the tentative conclusion that 3M hierarchical Model can be used to investigate the relationship between consumer personality traits and consumer paradoxical behavior with technology. From the outcome of the study, it has been apparent that personality traits may provide access to further understand this ambivalent consumer behavior with technological products. It lines up with other research, where authors indicated that cognitive ambivalent consumer behavior involves conflicting evaluations of product aspects and is resolves through effortful results (Sipila et al., 2017). Thus, further effective communication and knowledge transfer can be achieved by the observation of the personality traits of consumers

in the area of technological development of products along with the services, cross-cultural communication and global business environment.

One of the limitation of the research model is that it tests the general technological product, which is used by the consumers. This may explain why only some of the surface traits were predictors of the consumer paradoxical technological behavior. Future research can employ more potential tests for a specific product such as a computer and smartphone among others. The study states that openness to experience, need for body resources, emotional instability, and need arousal personality traits are not the predictors of paradoxical consumer behavior towards technology. However, this can be suboptimal, thereby indicating that further research needs to be conducted. On the contrary, with respect to the expectation of the study, the surface traits (technological product purchase interest and interest in new technology) do not correlate to the new/obsolete paradox, which can be affected by other factors. Thus, further research needs to be conducted in this context. The Metatheoretical Model of Motivation and Personality (3M Model) attracted significant research interest, which is apparent from the studies conducted by Schneider & Vogt (2012); Mowen (2004, 2001, and 2000); Mowen & Carlson (2003), and Wang et al. (2000). At the same time, the relationship between personality traits and consumer paradoxical behavior with technology-based products is undoubtedly complex, which needs to be explored critically and thoroughly in the future researches.

Appendix A. The Scales Employed to Measure the Elemental, Compound, Situational and Surface Traits

Elemental Traits:

Introversion ($\alpha = 0.873$), Licata et al., 2003.
I feel bashful more than others.
I am quiet when with people.
I am shy.
I am introverted.

Conscientiousness ($\alpha = 0.803$), Mowen & Spears, 1999; Mowen & Carlson, 2003; and Mowen et al., 2004.
I am an organized person.
I am precise with what I do.
I am able to do tasks successfully, without wasting a time or an energy (efficient).
I am orderly in what I do.

Openness to Experience ($\alpha = 0.799$), Mowen & Carlson, 2003.
I frequently feel highly creative.
I can find a novel solution.
I am more original than others.
I consider myself an imaginative person.

Need for Body Resources ($\alpha = 0.0860$), Mowen & Spears, 1999; Mowen & Carlson, 2003; and Mowen et al., 2004.
I focus on my body and how it feels.
I devote time each day to improving my body.
I feel that making my body look good is important
I work hard to keep my body healthy.

Need for Material Resources (α=0.904), Mowen & Spears, 1999; Mowen & Carlson, 2003; and Mowen et al., 2004.
I enjoy buying expensive things.
I like to own nice things more than most people.
Acquiring valuable things is important to me.
I enjoy owning luxurious things

Emotional Instability (α=0.866), Mowen & Spears, 1999; Mowen & Carlson, 2003; and Mowen et al., 2004.
I am moody more than others.
My emotions go way up and down.
I am testy more than others.
I am more temperamental than others.

Need for Arousal (α=0.823), Mowen & Spears, 1999; Mowen & Carlson, 2003; and Mowen et al., 2004.
I am drawn to experiences with an element of danger.
I seek an adrenaline rush.
I actively seek out new experiences.
I enjoy taking more risks than others

Agreeable (α=0.840), Licata et al., 2003.
I am tenderhearted with others.
I am sympathetic.
I am kind to others.
I am softhearted.

Compound Traits:

Competitiveness (α=0.872), Mowen et al., 2004; Mowen, 2004.
I enjoy competition more than others.
I feel that it is important to outperform others.
I enjoy testing my abilities against others.
I feel that winning is extremely important.

Need for learning (α=0.701), Mowen & Carlson, 2003.
I enjoy learning new things.
People consider me to be intellectual.
I enjoy working on new ideas.
Information is my most important resource.

Situational Traits:

Technology consciousness (α=0.719)
I feel it is important to have good technological skills.
I have a very strong appreciation for people who have good technological skills.
I keep my technological knowledge up to date.

Compulsive consumption (buying) (α=0.708), O'Guinn and Faber, 1989.
I sometimes buy things which I cannot afford.
When I shop, I am sometimes unable to stop.
I sometimes buy things which I do not care about.

Value Consciousness (α=0.855 or 0.866 without 1 item), Lichtenstein et al., 1990.
I am very concerned about low prices, but I am equally concerned about product quality.
When I am shopping for technology products, I compare the prices of different brands to be sure I get the best value for the money.
When purchasing a product, I always try to maximize the quality I get for the money I spend.
When I buy products, I like to be sure that I am getting my money's worth.
I generally shop around for lower prices on products, but they still must meet certain quality requirements before I will buy them.
When I shop, I usually compare the information for brands I normally buy I always check prices to be sure I get the best value for the money I spend.

Surface Traits:

Technological product purchase interest (α=0.770)
Compared to my friends, I buy a lot of technological products.
If needed, I could specially drive extra time to find technological products.
Interest in new technology (α=0.870)
I really enjoy information about new technology.
New technological products are an important part of my life.
I really enjoy buying technological products on a regular basis.
Interest in cultural experience (α=0.701 or 0.849 without 1 item)
Practicing my cultural traditions is important to me
Learning about other cultures is extremely appealing to me
I have a very strong appreciation for other culture food, music, and other.

Appendix B. The Scales Employed to Measure the Paradoxes of Technology (Mick & Fournier, 1998, Johnson et al., 2008, Kulviwat et al., 2007, Jarvenpaa & Lang, 2005)

Control/Chaos α=0.602
Technological products create provoking chaos in my behaviour.
I betrayed by technology because it advances so fast.
Dependence/Independence α=0.737
I feel that I limit my freedom by using technological products.
I dependent on technological products because they make my life easy.
New/Obsolete α=0.709
By the time a product enters a market, it is long outdated in term of technology.
Technological products get me to commit and invest to it and then it suddenly changes.
Competence/Incompetence α=0.673
Technological products challenge my technical abilities when I try to manage, operate, and maintain them.
Technological products have some technical features which make me feel dumb.
I am more competent and satisfy when I use a lower, rather than a higher, technological version of a product.
I often experience inability and resignation to use technological products.
If I am competent to use a technological product, I am trust a product.
Efficiency/Inefficiency α=0.623
Technological products save my time to perform the tasks.

Technological products are required my time commitment to maintain them.
I will buy more technological products if they are more easy to use.

Fulfill needs/Create needs α=0.731

Technological products take a simplicity out of my life.
Technological products provide a solution to my needs/problems.
Technological products cause a whole range of new problems that I have not had before.
As soon as I bought a new technological product and my needs are taken care of, I move on to find another technological product to fulfill more needs.

Engaging/Disengaging α=0.783

When I use technological products, I feel enjoyment and self-reinforcement.
I feel that technological products make me more passive and less active.
I often rely on technological products rather than to do it myself.
Technological products help me to be involved and stay active.

REFERENCES

Bawden, D. & Robinson, L. (2009). The dark side of information: overload, anxiety and other paradoxes and pathologies, *Journal of Information Science*, *35*(2), 180-191.

Bee, C. & Madrigal, R. (2013). Consumer uncertainty: The influence of anticipatory emotions on ambivalence, attitudes, and intentions, *Journal of Consumer Behaviour*, *12*(5), 370-381.

Bosnjak, M., Galesic, M. & Tuten, T. (2007). Personality determinants of online shopping: Explaining online purchase intentions using a hierarchical approach, *Journal of Business*, *60*(6), 597-605.

Bransford, J.D., Brown, A.L., & Cocking, A.A. (2000). *How people learn: Brain, Mind, Experience, and School (expanded edition)*. Washington DC: National Academy Press.

Cakarnis, J. & D'Alessandro, S.P. (2015). Does knowing overcome wanting? The impact of consumer knowledge and materialism upon credit card selection with young consumers, *Young Consumers*, *16*(1), 50-70.

Candan, B., Ünal, S. & Erciş, A. (2013). Analyzing the relationship between consumption values and brand loyalty of young people: a study on personal care products, *Management*, *29*, 29-46.

Chuah, S.H.W., Rauschanabel, P.A., Kney, N., Nguyen, B. Ramayah, T. & Lade, S. (2016). Wearable technologies: the role of usefulness and visibility in smartwatch adoption, *Computer Human Behavior*, *65*, 276-284.

Cohen J., Cohen, P., West, S.G., & Aiken, L.S. (2003). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences (Third Edition).* London: Lawrence Erlbaum Associates.

Colman, A. (2015). paradox. In A Dictionary of Psychology: Oxford University Press, Retrieved 22 Jul. 2019, from https://www-oxfordreference com.aurarialibrary.idm.oclc.org/view/10.1093/acref/9780199657681.001.0001/acref-9780199657681-e-5988.

Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297-335.

Dittmar, H., Long, J. & Bond, R. (2007). When a better self is only a click away: associations between materialistic values, emotional and identity-related buying motives, and compulsive buying tendency online, *Journal of Social and Clinical Psychology*, *26*(3), 334-361.

Edwards, S.M. (2010). The Technology Paradox: Efficiency versus Creativity, *Creativity Research Journal*, *13*(2), 221-228.

Fang, X., & Mowen, J.C. (2009). Examining the trait and functional motive antecedents of four gambling activities: slot machines, skilled card games, sports betting, and promotional games, *Journal of Consumer Marketing*, *26*(2), 121-131.

Hooi Ting, D., Fong Lim, S., Siuly Patanmacia, T., Low, C.G, & Chuan Ker, G. (2011). Dependency on smartphone and the impact on purchase behaviour, *Young Consumers*, *12*(3), 193-203.

Huhmann, B. & McQuitty, S. (2009). A model of consumer financial numeracy, *International Journal of Bank Marketing*, *27*(4), 270-293.

Jarvenpaa, S.L. & Lang, K.A. (2005). Managing the paradoxes of Mobile Technology, *Information Systems Management*, *22*(4), 7-23.

Johnson, D., Bardhi, F. & Dunn, D. (2008). Understanding How Technology Paradoxes Affect Customer Satisfaction with Self-Service Technology: The Role of Performance Ambiguity and Trust in Technology. *Psychology and Marketing*, *25*(5), 416-443.

Kang, J.Y.M. & Johnson, K.K.P. (2015). F-Commerce platform for apparel online social shopping: testing a Mowen's 3M model, *International Journal of Information Management*, *35*(6), 691-701.

Kulviwat, S., Bruner, G.C., Kumar, A., Nasco, S., & Clark, T. (2007). Toward a Unified Theory of Consumer Acceptance Technology, *Psychology and Marketing*, *24*(12), 1059-1084.

Lee, Y.K., Chang, C.T., Lin, Y. & Cheng, Z.H. (2014). The dark side of smartphone usage: psychological traits, compulsive behavior and technostres, *Computers in Human Behavior*, *31*, 373-383.

Licata, J.W., Mowen, J.C., Harris, E.G., & Brown, T.J. (2003). On the Trait Antecedents and Outcomes of Service Worker Job Resourcefulness: A Hierarchical Model Approach, *Journal of the Academy of Marketing Science*, *31*(3), 256-271.

Lichtenstein, D.R., Netemeyer, R.G. & Burton, S. (1990). Distinguishing Coupon Proneness from Value Consciousness: An Acquisition-Transaction Utility Theory Perspective, *Journal of Marketing*, *54*(3), 54-67.

Luce, M.F., Bettman, J.R., & Payne, J.W. (2001). Emotional decisions: Tradeoff difficulty and coping in consumer, *Journal of Consumer Research*, *1*, 1-200.

Mick, D.G. & Fournier, S. (1998), Paradox of Technology: Consumer Cognizance, Emotions, and Coping Strategies, *Journal of Consumer Research*, *25*(2), 123-143.

Mowen, J.C. & Carlson, B. (2003). Exploring the Antecedents and Consumer Behavior Consequences of the Trait of Superstition, *Psychology & Marketing*, *20*(12), 1045-65.

Mowen, J.C. & Spears, N. (1999). Understanding Compulsive Buying Among College Students: A Hierarchical Approach, *Journal of Consumer Psychology*, *8*(4), 407-430.

Mowen, J.C. (2001). The 3M Model of Motivation and Personality: Theory and Empirical Applications to Consumer Behavior, *Journal of Marketing Research*, *38*(3), 396-397.

Mowen, J.C., & Sujan, H. (2005). Volunteer behavior: A hierarchical model approach for investigating its trait and functional motive antecedents, *Journal of Consumer Psychology*, *15*(2), 170-182.

Mowen, J.C., Harris, E.G., & Bone, S.A. (2004). Personality Traits and Fear Response to Print Advertisements: Theory and an Empirical Study, *Psychology & Marketing*, *21*(11), 927-943.

Mowen, J.C., Fang, X. & Scott, K. (2009). Visual product aesthetics: A hierarchical analysis of its trait and value antecedents and its behavioral consequences, *European Journal of Marketing*, *44*(11/12), 1744-1762.

Mowen, J.C. (2000). *The 3M Model of Motivation and Personality: Theory and Empirical Applications to Consumer Behavior*, Boston, MA: Kluwer Academic.

Mowen, J.C. (2004). Exploring the trait of competiveness and its consumer behavior consequences, *Journal of Consumer Psychology*, *14*(1-2), 52-63.

Mowen, J.C., Park, S., & Zablah, A. (2007). Toward a theory of motivation and personality with application to word-of-mouth communication. *Journal of Business Research*, *60*, 590-596.

O'Guinn, T.C. & Faber, R.J. (1989). Compulsive Buying: A Phenomenological Exploration, *Journal of Consumer Research*, *16*(2), 147-157.

Paulsen, M. (2006). Emotion, Memory, and stories. In B. Hoffman (Eds.), *Encyclopedia of Educational Technology*, March. New-York.

Peters, O. (2009). A social cognitive perspective on mobile communication technology use and adoption, *Social Science Computer Review*, *27*(1), 76-95.

Reis, J., Amorim, M. & Melao, N. (2019). Multichannel service failure and recovery in a O2O era: A qualitative multi-method research in the banking services industry, *International Journal of Production Economics*, *215*, 24-33.

Roy, S.K., Balaji, M.S., Sadeque, S., Nguyen, B., & Melewar, T.C. (2017). Constituents and consequences of smart customer experience in retailing, *Technological Forecasting and Social Change*, *124*, 257-270.

Schneider, P.P. & Vogt, C.A. (2012). Applying the 3M Model of Personality and Motivation to Adventure Travelers, *Journal of Travel Research*, *51*, 704.

Sipila, J., Sundqvist, S. & Tarkiainen, A. (2017). Winding Paths: Ambivalence on Consumers' Buying Process, *Journal of Consumer Behaviour*, *16*, 93-112.

Sparks, B.A., Bradley, L.G. Jennings, G.R. & Johnston, N.R. (2014). Cooling off and Backing out: Understanding Consumer Decisions to Rescind a Product Purchase, *Journal of Business Research*, *67*(1), 2903-2910.

Strebel, J., O'Donnell, K. & Myers, J. (2004). Exploring the Connection between Frustration and Consumer Choice Behavior in a Dynamic Decision Environment, *Psychology & Marketing*, *21*(12), 1059-1076.

Sun, T. & Wu, G. (2011). Trait Predictors of Online Impulsive Buying Tendency: A Hierarchical Approach, *Journal of Marketing Theory and Practice*, *19*(3), 337-346.

Thyroff, A. & Kilbourne, W.E. (2018). Self-enhancement and individual competitiveness as mediators in the materialism/consumer satisfaction relationship, *Journal of Business Research*, *92*, 189-196.

Un, S. & Price, N. (2007). Bridging the Gap between Technological Possibilities and People: Involving People in the Early Phases of Technology Development, *Technological Forecasting and Social Change*, *74*, 758-1772.

Wang, C.L., Bristol, T., Mowen, J.C., & Chakraborty, G. (2000). Alternative Modes of Self-Construal: Dimensions of Connectedness-Separateness and Advertising Appeals to the Cultural and Gender-Specific Self, *Journal of Consumer Psychology*, *9*(2), 107-115.

Ware, O. (2014). Kant on Moral Sensibility and Moral Motivation, *Journal of the History of Philosophy*, *52*(4), 727-746.

Weigart, A. & Franks, D.D. (1998). Ambivalence: A Touchstone of Modern Temper. In D. Franks & D. McCartny (Eds.), *The Sociology of Emotions,* 205-227, London: JAI.

Zolfagharian, M. & Yazdanparast, A. (2019). Immediacy pandemic: consumer problem-solving styles and adaptation strategies, *European Journal of Marketing*, *53*(6), 1051-1072.