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The Effect of Personality Traits and Gender Roles on Consumer Channel Choices

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Abstract. With the rise of new technologies, consumers have gained new ways of purchasing goods and services through digital channels. A variety of determinants of channel choices have been assessed in previous studies. Still, the role of the individual consumer characteristics (i.e. personality traits and gender roles) in channel choices remains particularly unclear. Yet, better understanding their role would be beneficial to increase the use of digital channels. In this study, we extend an existing decision-making model by adding individual consumer characteristics as antecedents of the model. We test the proposed hypothesis by analyzing data collected in a lab experiment. We find that certain personality traits and gender roles have a significant effect in the extended model of channel choices. Practitioners can use this knowledge to adapt digital channels to their target groups by addressing personality-specific concerns or motivators.

Keywords: Digital Channels, Personality, Gender Roles, Channel Choices.

1 Introduction

The rise of new technologies led to the development of new sales channels, such as the online or mobile channel which are collectively referred to as digital channels. The digital channels offer consumers a multitude of options to search, purchase, and use products and services in different channels [1]. Yet, only 7% of the consumers are “online-only shoppers” while the majority (73%) relied on multiple channels during their shopping journey [2]. The remaining 20% were store-only shoppers [2]. An increase in online-only shoppers would reduce free-riding and channel-switching, and lead to substantial monetary savings for channel providers as transactions in physical channels are more expensive [3].

IS and marketing scholars have analyzed multi-channel consumer behavior and detected a variety of channel properties that function as determinants of channel choices. In addition, existing studies assessed demographical factors to analyze individual differences. Yet, demographics alone are not suitable to explain individual differences in channel choices [4, 5]. However, other individual characteristics might

be more applicable, such as personality traits and gender roles. They have served as explanatory or moderating variables in other contexts of online behavior before [6–9]. Moreover, the influence of personality traits or gender roles on channel choices has not been covered before as literature reviews on channel choices have shown [10, 11]. Additionally, personality traits and gender roles are well grounded and researched in the psychological literature and thus suitable to derive sound hypotheses.

Personality traits and gender roles can be assessed through different inventories such as the prominent Big Five Inventory (BFI) [12] or the Bem Sex Role Inventory (BSRI) [13]. Personality traits have an influence in various fields of IS Research, e.g. in various forms of decision support [14], to advance the Technology Acceptance Model [15] or the Theory of Acceptance and Use of Technology [6]. The same accounts for gender and gender roles which are used in IS theories, too [8, 9]. Also from a practical point of view, it is important to understand their role in channel choices as companies nowadays are able to assess personality traits based on social media data [16].

Therefore, extending existing decision-making models in the periphery of channel choices with personality traits and gender roles is important to derive insights for the design of digital channels. Among a variety of such decision-making models [17–19], we identified the basic theoretical framework of Kim et al. [18] to be particularly applicable. It examines the influence of perceived risk, consumer trust and perceived benefits on purchase intentions and the purchase behavior, and it has been used or referenced in various similar decision-making studies before. We extend this model in two ways: with personality traits and gender roles by the following research question:

Research Question: *What is the effect of personality traits and gender roles on consumer decision-making processes of channel choices?*

To answer the research question, we conducted a laboratory experiment with 236 participants in a university laboratory using a multi-channel banking context. The participants had to browse a fictitious banking website and to contract a student loan. The data is analyzed using Structural Equation Modeling (SEM).

Our study provides several contributions to the IS literature. First, it highlights the role of personality traits and gender roles in channel choices and extends an existing decision-making model [18]. We find that agreeableness, neuroticism, extraversion, masculinity and femininity are important antecedents of the channel determinants of perceived risk, trust, and perceived benefits. Thereby, we also replicated the original model, which is based on a survey, in an experimental context. Finally, we generate practical knowledge that can be used for the design of digital channels.

2 Related Work and Theoretical Foundations

2.1 Determinants and Models of Channel Choices

Multi-channel behavior of consumers provides the context for our study as using multiple channels has become the standard case for most consumers while only few consumers are “online-only shoppers” [2]. Within this context, several studies have reviewed the determinants of channel choices and categorized them into different dimensions [10, 11, 20]. One study [20] categorizes the determinants into four groups (channel determinants, purchase specifics, external influences, and individual differences), another study [11] identifies the dimensions of context (including channel

determinants), consumer and product. According to the literature reviews, particularly channel determinants play a decisive role in the choice of channels. Hence, they are usually integrated into channel choice or decision-making models.

Based on a systematic literature review (SLR) on channel choices, we found at least ten different models of channel choices or intention to use a channel [17, 18, 21, 22]. The SLR used keyword-based search strings such as “multi-channel” AND “consumer behavior”, “multi-channel” AND “purchase decisions” OR “multi-channel behavior” or just “channel choice” in the online databases AIS library, ScienceDirect, EBSCOhost and Google Scholar. The full SLR is published in a separate study [11] and we build on those results. Most models have in common that they use a basic set of main constructs that are anteceded by a variety of more context-dependent constructs, such as perceived privacy protection or privacy concerns [18, 23].

One of the most often used and cited models in e-commerce decision-making is presented by Kim et al. [18]. Their core model theorizes that purchase intentions (in our case channel choices) are based upon perceived risk, perceived benefits and consumer trust. For instance, their study shows that trust has a negative impact on perceived risk which, in turn, has a negative impact on consumers’ purchasing decisions. This is in line with other studies that show that channel choices are determined by perceived risk, privacy concerns or trust [1, 17], and particularly in a banking context [24, 25]. Our study replicates the main variables of Kim et al. in a services context as the multi-channel behavior in this context is under-researched [11] and as it would be a valuable finding if the results can be repeated in another industry. Thereby, we also build on other studies in a financial services setting [24, 26] which relied on the same framework of Kim et al. [18] before.

We decided to focus on personality traits and gender roles as they have proven to be important in different online behavior contexts before [6, 8], but have been left out as individual differences by the channel choice literature [11, 20]. Moreover, they are well researched in the psychological literature with the Big Five Inventory and the Bem Sex Role Inventory having each several thousand citations. This enables us to derive sound hypotheses and to discuss our results in relation to previous studies which assessed comparable settings [14, 27, 28]. Finally personality traits, once formed in the young ages, remain stable in the following years, and are only subject to change in the old ages again [29]. This makes them perfect to compare different age groups unlike other constructs that are subject to intertemporal changes.

2.2 Personality Traits and Gender Roles

Personality traits can be conceived as a “neuropsychic structure having the capacity to render many stimuli functionally equivalent, and to initiate and guide equivalent (meaningfully consistent) forms of adaptive and expressive behavior” [30]. Several inventories exist to classify personality traits. The most prominent inventory is the Big Five Inventory (BFI) [12], namely extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. John and Srivastava [31] provided comprehensible definitions for each trait. *Extraversion* “implies an energetic approach toward the social and material world and includes traits such as sociability, activity, assertiveness, and positive emotionality” (p.30). *Agreeableness* “contrasts a prosocial

and communal orientation towards others with antagonism and includes traits such as altruism, tender-mindedness, trust, and modesty” (p.30). *Conscientiousness* “describes socially prescribed impulse control that facilitates task- and goal-directed behavior, such as thinking before acting, delaying gratification, following norms and rules, and planning, organizing, and prioritizing tasks” (p.30). *Neuroticism* “contrasts emotional stability and even-temperedness with negative emotionality, such as feeling anxious, nervous, sad, and tense” (p.30). Finally, *openness* “describes the breadth, depth, originality, and complexity of an individual’s mental and experiential life” (p.30).

In addition to personality traits, we consider gender roles due to gender differences in personality traits [32, 33]. IS researchers have frequently used gender differences as an explanatory factor in explaining technology acceptance [8, 9]. To account for this stream, we refer to an existing gender role inventory, the Bem Sex Role Inventory [13]. It uses masculine, feminine and neutral characteristics to classify different sex types. The original questionnaire consisted of 20 masculine, 20 feminine and 20 neutral characteristics that can be used to derive different sex-types, especially feminine and masculine. Feminine-typed individuals score high on characteristics like “affectionate”, “sensitive to the needs of others” or “loves children” while masculine-typed persons are associated with being “dominant”, “forceful” or “willing to take risks” [13]. The inventory has been refined with more up to date characteristics [34, 35] and used and referenced in IS studies in the past [9, 36].

2.3 Personality Traits and Gender Roles in E-Commerce Environments

Personality traits and gender roles have rarely been used in the channel choice literature. However, they were employed outside of the context of channel choices to investigate consumer behavior in e-commerce and online environments in general. Table 1 shows a subset of prior research of personality traits and gender roles in online environments.

Some researchers in the IS domain have studied personality traits and gender roles. Yet, a systematic investigation is missing, and previous research suffers from several shortcomings. Therefore, we see room for differentiation in several dimensions. Firstly, some researchers have performed qualitative studies by conducting interviews [37] or developing a framework [38]. Secondly, some studies [39–41] did not use established inventories of personality traits such as the BFI, which would be helpful in terms of the reliability of constructs, or when different studies want to be compared. Thirdly, it is important to notice that past studies assessed intentions [14, 40, 42] or a different dependent variable [27, 41], such as online impulse buying. The dependent variable is important as it makes a difference whether consumers can choose between different channels or whether they are only asked about their intentions to use one channel. That is, our research aims to clarify the influence of personality traits and gender roles at an early stage of the buying process. Hence, it is important to investigate their role in channel choices and to study their influence as antecedents of the basic theoretical framework [18], which we build upon and extend.

Table 1. Related work using personality traits and gender roles in online environments

Study	Dependent variable	Type of study	Personality trait/gender role	Quantitative results
[39]	Attitude to online shopping	Quantitative - Survey	Openness to experience, risk-taking propensity	Both personality traits significant effect on DV
[42]	Intention to shop online	Quantitative - Survey	Big Five Inventory (BFI)	Neuro., Openness, and Agreeableness with effect on DV
[38]	Channel preferences	Qualitative - Framework	Not specified	n/a as qualitative framework only
[14]	Intention to disclose information	Quantitative - Lab experiment	Big Five Inventory (BFI)	BFI with direct (indirect) effect on privacy concerns (DV)
[40]	Urge to buy impulsively	Quantitative - Survey	Impulsiveness, normative evaluation, instant gratific.	All personality traits significant effect on DV
[27]	Online impulse buying	Quantitative - Survey	Big Five Inventory (BFI)	All personality traits significant effect on DV
[41]	Device usage	Quantitative - Survey	Impulsiveness (I.), need for touch (NFT)	I. higher use of mobile devices, NFT prone to online devices

3 Hypothesis Development

3.1 Replication of Basic Theoretical Framework

First, we replicate the basic theoretical model. Therefore, we replace the purchase intention with the channel choice, and we assume that the channel choice is influenced by the perceived risk, trust, and perceived benefits [18]. In addition, perceived risk mediates the relationship of trust and the channel choice [18]. The original study provides a detailed reasoning for each hypothesis which we adopt without any changes.

H1a: A consumer's perceived risk negatively affects the choice of the online channel.

H1b: A consumer's perceived benefits positively affects the choice of online channel.

H1c: A consumer's trust negatively affects the consumer's perceived risk.

H1d: A consumer's trust positively affects the choice of the online channel.

3.2 Personality Traits as Antecedent of the Basic Theoretical Framework

The second hypothesis aims at the relationship of personality traits and the constructs of the basic theoretical framework [18]. Based on previous studies [14, 42], we assume that personality traits are antecedents of perceived risk, trust, and perceived benefits. We assume that the BFI traits are not directed to one integrated construct. Instead, each trait has different relationships with the relevant constructs (similar to [15]).

In particular, neuroticism is associated with anxiety which is illustrated exemplarily by items such as “worries a lot” or “gets nervous easily” [31]. Consequently, neurotic individuals focus on what might go wrong and tend to overlook the benefits of a new technology. Therefore, neuroticism has a positive relationship towards perceived risk and a negative relationship towards perceived benefits, such that highly neurotic participants perceive digital channels as particularly risky and less beneficial. Extraversion is associated being outgoing. Therefore, introverted participants value the anonymity of digital channels and shy away from social interactions. Thus, extraversion may be negatively correlated with the perceived benefits of digital channels. Moreover, extraverted individuals have higher trust [28]. Agreeableness is based on the assumptions of social compatibility, and of a basic trust in the goodness of people. This also influences the trust of individuals with high agreeableness and leads to a positive relationship towards trust [28]. Based on a previous study, conscientiousness is negatively related to perceived risk [43]. Finally, openness antecedes trust. This follows the idea that “more openness leads to more willingness to embrace new concepts and be more careless with respect to new situations and experience” [28].

Similar to other studies [42] and given that personality traits and channel choices are under-researched, it is not possible to derive a relationship for all connections between the BFI and perceived risk, trust, and perceived benefits. Yet, as the BFI is usually measured with all traits, we also estimate the remaining traits and relationships exploratively [44], but which is not reported in detail due to the page limitation.

H2a: Neuroticism negatively affects the consumer's perceived benefits.

H2b: Neuroticism positively affects the consumer's perceived risk.

H2c: Extraversion negatively affects consumer's perceived benefits.

H2d: Extraversion positively affects consumer's trust.

H2e: Agreeableness positively affects consumer's trust.

H2f: Conscientiousness negatively affects perceived risk.

H2g: Openness to experience positively affects trust.

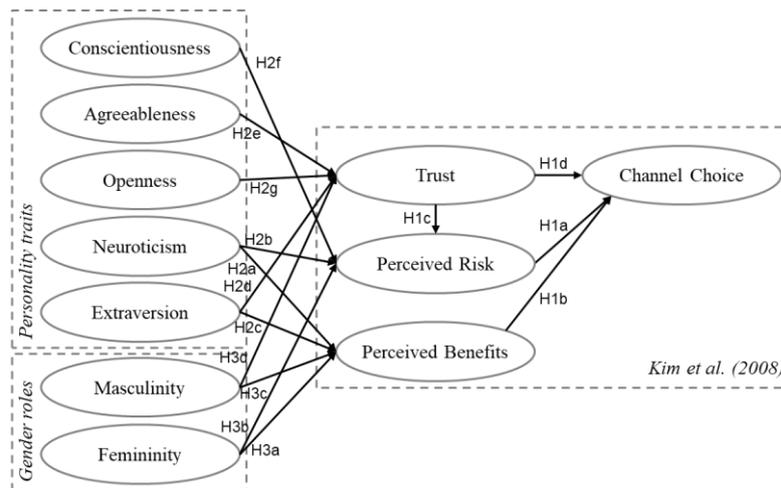


Figure 1. Research Model

3.3 Gender Roles as Antecedent of the Basic Theoretical Framework

In addition to personality traits, we suggest adding gender roles to the basic theoretical framework due to gender differences in personality traits [32, 33]. Thereby, we assume that femininity has a negative influence on perceived benefits. This arises from the computer self-efficacy, which is usually lower among feminine individuals [9, 45], and which impacts perceived ease of use and therefore the perceived benefits [9]. When it comes to perceived risk, individuals with feminine traits are more risk-averse [36, 46] which implies a positive relationship of femininity and perceived risk. The hypotheses are supported by the fact that participants with a high score in femininity are socialized to be help-seeking and relationship oriented [9, 47].

In turn, masculinity, which is related to self-efficacy [9, 45], has a positive influence on perceived ease of use and therefore a positive relationship towards perceived benefits [8, 9]. This is also supported by achievement orientation of participants with masculine traits that are usually fulfilled by the benefits of a technology [47]. Further, masculinity has a positive influence on trust as previous studies have shown for an augmented Technology Acceptance Model [8].

H3a: Femininity negatively affects the consumer's perceived benefits.

H3b: Femininity positively affects the consumer's perceived risk.

H3c: Masculinity positively affects the consumer's perceived benefits.

H3d: Masculinity positively affects the consumer's trust.

4 Research Methodology

4.1 Experiment Design and Experiment Material

To answer our research question, we conducted an experiment in the KD2Lab (<https://www.kd2lab.kit.edu/>). Our participants were part of the KD2Lab panel which comprises mainly students studying in Karlsruhe, Germany. In order to become a member of the panel, interested individuals can register themselves. The participants were invited by E-Mail to participate in the study. They received 8€ for their participation. The study consisted of four steps:

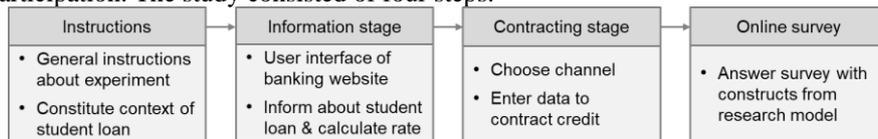


Figure 2. Research Design

First, the participants received general information about the experiment. Thereby, they learned that the experiment covers financial decision-making in a banking context. We have chosen the financial services industry because banking channel structures are currently being reshuffled with major branch closures and considerable investments in digital channels such as online or mobile. Moreover, the financial service of student loans can be contracted online for a few years. Next, participants were presented general information on student loans. These pages have been inspired by the website of a large German bank and made the experiment as realistic as possible for the participants. In the contracting phase, participants had to choose a channel to contract the loan. Next,

the participants either had to fill out the loan form on the computer screen or as a paper form. Finally, they completed a survey with the constructs from the research model.

4.2 Measurements

In the experiment, the dependent variable is a channel choice which is operationalized as a binary choice between the online channel and the branch. Additionally, we included a confidence rating asking them how much they inclined towards their decision by presenting this item right after the channel choice in the experiment. For this, we used a seven-point Likert scale ranging from “very weak tendency towards the chosen alternative” to “very strong tendency towards the chosen alternative”. For the Structural Equation Modelling (SEM) we used the continuous confidence rating whereas the two seven-point Likert scales (seven-point for branch on the one hand and seven-point for online on the other hand) were scaled-down to one seven-point Likert scale to match the scales of the remaining items.

The constructs of the original model were adapted from the original study. Instead of consumer trust [18], we assessed Internet trust [48] due to the online banking context. The personality traits are based on the BFI using the 42-item questionnaire [31, 49]. Moreover, we measured the BSRI [13] using the 20-item questionnaire [34, 35].

All items were measured using a seven-point Likert scale. As a quality check, we measured further constructs to assess their influence as an alternative explanation for the channel choice. These constructs were personal Internet interest [48], process digitizability [22], information insecurity (new items), and online banking usage [21]. Again, all items, except for online banking usage, were measured using a seven-point Likert scale. Moreover, we asked for age, gender, education, Internet usage, whether and where they contracted a loan in the past, as well as their reasons for the channel choice (open text field). The survey was conducted in German so that some items were forward and backward translated. Several pre-tests of the experiment prototype and the survey were conducted prior to the actual experiment.

4.3 Data Analysis

We used Structural Equation Modelling (SEM) to derive the path estimates. Generally, SEM can be divided into the covariance-based SEM (CB-SEM) and partial least squares SEM (PLS-SEM) which are variance-based [50, 51]. In this study, we used a covariance-based approach. CB-SEM approaches offer a variety of goodness-of-fit indicators and they provide a more reliable evidence for the fit between the theoretical model and the observed empirical data. Moreover, CB-SEM is primarily used for confirmatory research objectives [51]. To do so, we modelled the research model with IBM SPSS Amos 23.0.0 using a maximum likelihood estimation. With a sample size of 236 participants, the experimental study exceeds the threshold of 100, which is suggested for the maximum likelihood estimation in structural equation modelling [52]. We follow the recommendation that the data analysis should comprise the evaluation of the measurement model and the structural model [50, 53]. We used z-scores for the independent variables yielding a consistent threshold value for statistical significance.

5 Results

5.1 Descriptive Analysis

244 participants took part in the laboratory experiment. 8 participants had to be excluded as they failed to answer two test items correctly, or as they showed insufficient language skills in the open text fields. Demographical data showed an age ranging from 16 to 50 years with an average of 24 years. They used the Internet on average 4.8 hours per day, and only few participants (12.3%) had contracted a loan before. Hence, pre-knowledge is not a concern. In sum, our sample was more male (59%), younger and higher educated than the German Internet population. Yet, also the original study [18] has a similar age structure and gender distribution with an average age of 22 years and 58% male participants. To replicate and extend their study, we needed a similar sample.

Concerning the channel choices in the experiment, 114 participants (48%) chose the branch, while 122 (52%) participants decided to contract the student loan via the online channel. The online channel was mainly chosen because of its convenience and the speed of closing the transaction. The branch was chosen because of insufficient product knowledge, riskiness of the online channel, and the possibility to clarify open questions.

5.2 Measurement Model, Construct Reliability and Validity

First, the measurement model assessed the reliability, convergent validity as well as the discriminant validity of the relevant constructs. Hence, Cronbach's alpha (Cb. α), the composite reliability (CR), and the average variance extracted (AVE) were estimated.

For Cronbach's alpha, all constructs, except for agreeableness, meet the recommended threshold of 0.70 [54]. Concerning the composite reliability (CR), all constructs, apart from conscientiousness and openness, meet the established cut-off value of 0.70 [55]. Moreover, we calculated the AVE values for each construct as the AVE can be used to estimate the discriminant validity. The AVE values should exceed the threshold of 0.5 [56] which is the case for all constructs except for agreeableness, conscientiousness, openness and masculinity. The implications of the reliability measures will be discussed in the next chapter. The mean values for the personality traits of the BFI are similar to other studies in Germany [49]. Compared with the original study, our sample perceived less risk, had less trust, but slightly higher benefits.

Table 2. Measurement Model Assessment and Descriptive Statistics

Variable	Construct	Abbr.	Cb. α	CR	AVE	Mean	SD
Personality traits	Extraversion	EXT	0.89	0.89	0.51	4.73	1.05
	Agreeableness	AGR	0.64	0.73	0.26	4.72	0.73
	Conscientiousness	CON	0.71	0.31	0.14	4.77	0.77
	Neuroticism	NEU	0.85	0.89	0.53	3.64	1.08
	Openness	OPE	0.72	0.56	0.21	4.84	0.71
Gender roles	Masculinity	MAS	0.88	0.89	0.46	4.72	0.87
	Femininity	FEM	0.89	0.91	0.51	4.88	0.88
Variables original model	Perceived risk	RIS	0.72	0.84	0.64	3.56	1.21
	Trust	TRU	0.70	0.83	0.62	3.91	1.04
	Perceived benefits	BEN	0.79	0.88	0.71	5.80	1.03

In addition, we set up a correlation matrix to be able to compare the inter-construct correlation and the square root of the AVE [56] (see Table 3). The values for the AVE values should exceed the inter-construct correlations for adequate discriminant validity [18, 56]. Note that not all square roots of the AVE exceed the inter-construct correlations, e.g. not for openness and conscientiousness. Again, the implications will be discussed in the next chapter. Overall, the results indicate that the measurement model is appropriate for the research model except for conscientiousness and openness as these constructs fail to meet several criteria. We also estimated the variance inflation factors (VIFs) to control for threats of multicollinearity. However, all VIFs ranged between 1.0 and 1.9, and they were thus below the recommended cutoff value of 5 [50].

Table 3. Inter-Construct Correlation Matrix (square root of AVE in bold); CHO = Choice

	EXT	AGR	CON	NEU	OPE	MAS	FEM	RIS	BEN	TRU
EXT	0.71									
AGR	0.25	0.51								
CON	0.28	0.29	0.37							
NEU	-0.37	-0.21	-0.25	0.73						
OPE	0.31	0.17	0.37	-0.18	0.46					
MAS	0.65	0.00	0.35	-0.42	0.38	0.68				
FEM	0.25	0.57	0.37	0.01	0.32	0.19	0.71			
RIS	-0.06	0.02	-0.03	0.07	0.04	-0.01	0.15	0.80		
BEN	0.03	0.04	0.06	-0.25	0.10	0.18	-0.02	-0.16	0.84	
TRU	0.04	0.10	-0.03	-0.15	0.02	0.10	0.02	-0.20	0.29	0.79
CHO	0.01	-0.04	0.04	-0.17	-0.01	0.14	-0.15	-0.33	0.42	0.34

The channel choice showed the strongest correlations with perceived risk, perceived benefits and trust which are all constructs from the original model. However, it also shows zero-order correlations with neuroticism, femininity and masculinity. This provides initial support for the predictive value of personality traits and gender roles.

5.3 Structural Model Assessment

Next, following the two-step approach [53], we estimated the structural model. The structural model includes the standardized regression weights for the estimated path coefficients of the model (see Figure 3 below). Significant paths are presented in bold. The structural model shows that the basic theoretical framework has significant effects between trust, perceived risk, perceived benefits and channel choice. In particular, trust has a strong negative relationship towards perceived risk while it has a positive relationship towards channel choice. As expected, perceived benefits have a strong positive relationship towards channel choice. The effects have a similar strength compared with the original model. Therefore, hypotheses H1a to H1d are supported.

Concerning the BFI, neuroticism has indeed a strong negative effect on perceived benefits, thus supporting H2a. However, neuroticism does not have a significant positive effect on perceived risk. Hence, H2b is not supported. Similarly, extraversion was expected to negatively affect perceived benefits. The data supports this relationship and thus also H2c is supported. Yet, extraversion shows no significant negative effects on trust. Consequently, H2d is not supported. In turn, agreeableness had a strong

positive effect on trust, thus supporting H2e. For the remaining two traits, openness and conscientiousness, we could not find any significant paths. So overall, hypotheses H2a, H2c and H2e are supported, while hypotheses H2b, H2d, H2f, and H2g are not.

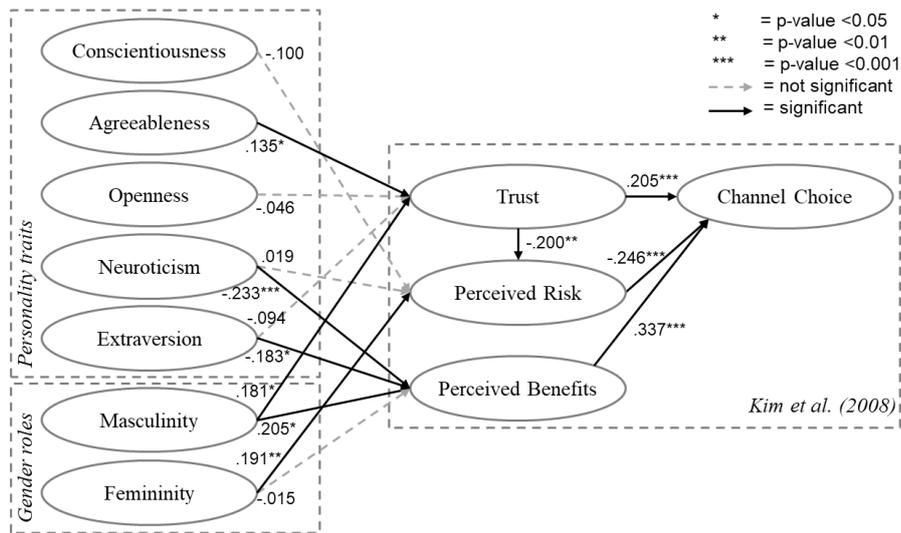


Figure 3. Results of the structural model

Finally, we turn to the BSRI. The relationship of masculinity and trust as well as masculinity and perceived benefits is positive and significant. Thus, hypotheses H3c and H3d are supported. In addition, we predicted a positive relationship of femininity and perceived risk. The data supports this relationship and hence H3b is supported. Only the relationship of femininity and perceived benefits is insignificant. Overall, hypotheses H3b to H3d are supported, but hypothesis H3a is not. We conclude that perceived benefits and trust are significantly antecedent by several personality traits and gender roles. This conclusion still holds true when the model is calculated with all possible combinations between personality traits, gender roles, and the original model.

Finally, we report further results on channel choices using control variables. We could only find marginal differences in the results when controlling for demographics. Thereby, the results do not differ significantly in terms of age, gender, or education.

6 Discussion

Overall, we have shown that personality traits and gender roles antecede established constructs of the decision-making model. The results are discussed in three ways:

First, the personality traits generally show an effect on trust and perceived benefits. Let us first have a look at neuroticism which negatively affects online channel choices. Neurotic participants are anxious, focus on the negative aspects, and disvalue the benefits of the online channel. In line with our prediction, neurotic people were less likely to choose the online channel (Table 3). The results of the SEM indicate that this

effect is explained by the negative relationship with the perceived benefits of the online channel. Surprisingly, neuroticism did not correlate with perceived risk, nor was this path significant in the SEM (Figure 3 above) as this would have made sense intuitively.

For extraversion, the data supports the negative relationship towards perceived benefits. An explanation might be that less extraverted (i.e. introverted) consumers value the anonymity of the online channel. We offer an alternative explanation that the items for perceived benefits focus on saving time and convenience [18] while extravert individuals are energetic, active and sociable [12, 31]. Hence, there might be a misfit between convenience and the energy/activity. Complementing this explanation, one study [27] found a positive effect of extraversion on online impulse buying. In turn, we find no effect for extraversion and trust which is in line with a previous study [28].

Agreeableness is the trait that complies most with our hypotheses. As agreeableness is positively related to trust, we trace this back to the social compatibility and the basic trust in the goodness of people. This is also in line with the finding that participants with high agreeableness also rated the provider of the online channel as slightly more trustworthy. Again, this is in contrast to Bansal et al. [14], and it might either be attributable to the context, or that their study directed all personality traits towards one construct, and not towards the antecedents of the dependent variable.

Finally, no significant relationships, and no correlation with the dependent variable could be found for conscientiousness and openness. Although this is in line with another study [28], it would be premature to refuse that conscientiousness and openness affect the channel choice. The lack of results in the SEM could reflect the poor reliability of these measures. The validity of conscientiousness and openness to experience cannot be discussed appropriately as the reliability is too low.

How about the direct effects of personality traits on channel choice? Based on our correlation matrix, we see that only neuroticism decreases online channel choice. This result might be due to the insecurity of conducting banking services online. Frequently, banks report security issues related to the online banking which might be considered as more severe by neurotic individuals. Yet, we could not find any effects for the other traits of the BFI, which also lacked a correlation with the dependent variable (Table 3).

Secondly, also gender roles seem to play an important role in channel choices. Except for the relationship of femininity and perceived benefits, all relations are significant. To explain these results, we use the gender schema theory [57] which states that societal beliefs lead to the creation of gender schema in the young ages of individuals. Once established, these gender schemas influence the processing of information and the self-esteem which leads to a behavior that is consistent with the gender schema [57]. Hence, individuals have created gender schema towards what is expected of their gender role in terms of risk-aversion and trust. This leads to their positive/negative association with the predictors of channel choices. E.g. the traditional role of men is to be strong, open and independent, which is reflected in a positive link with trust and perceived benefits, similar to other studies [9]. In turn, there were no direct or moderating effects of biological sex, demonstrating the prime relevance of psychological inter-individual differences for understanding channel choices.

We can only speculate how results would differ with a representative sample. We note some gender differences as women showed a slightly higher perceived risk and a

higher conscientiousness. Thus, a less male sample could lead to different results for these constructs and could potentially strengthen the effects that were insignificant in this study. For a more detailed discussion of biological sex and gender roles in online channel choices, we also refer to another of our studies [25].

Third, we replicated the original (survey-based) model in an experimental context. This is important as it has been frequently noticed that replications fail or lead to different results [58]. Our replication in an experimental setting with a financial services context strengthens the basic theoretical framework and its generalizability across various industries. As for the extended model including the personality traits and gender roles it is not yet possible to generalize the results for all industries.

7 Conclusion

To conclude, this study makes several contributions. *Theoretically*, the main finding is the extension of the basic theoretical framework [18] with personality traits and gender roles. These personality traits and gender roles involve especially neuroticism, extraversion, agreeableness, masculinity, and femininity. The study highlights that it is not sufficient to design an information system autarkically but that the individual characteristics of the prospective users always have to be taken into account. In addition, we replicated the original model in an experimental context.

Practitioners are a core target group of IS research. Therefore, especially in financial services companies, they benefit from our work by deriving insights for the design of their channels. Our study provides the basis for matching individual characteristics with channel properties given that companies can assess personality traits based on social media data [16]. Then, the benefits of the digital channel, e.g. broad product spectrum or convenience, should be highlighted particularly to introverted consumers or consumers with low neuroticism. In addition, consumers with feminine traits could be reached with risk-reducing messages, privacy and security seals or other IS artefacts.

Our study also has *societal* implications. As more and more (banking) branches are closed, certain personality traits are systematically excluded from technology-based purchasing opportunities as they avoid using digital channels. From an equality perspective, it would be beneficial to outweigh the disparities in channel choices. This can only be solved by investing in capabilities, such as security features, that attract online-distant personality traits and gender roles. Moreover, consumers themselves could save time and reduce information overload by using individualized channels.

A *limitation* of this study is the somewhat artificial setup of a laboratory experiment. As no financial assets were at stake, the participants might not have felt the anxiety of contracting a real student loan. We tackled this problem by urging them to behave as if real money was involved, and by leaving them in the dark about the intention of the study. In addition, the sample is younger and included more students than the Internet population of Germany, but which is in line with the original study [18]. This limits the generalizability of the results but as we aimed for inter-individual differences unrelated to age, this limitation is of minor relevance. Moreover, two personality traits perform poorly in terms of reliability and no conclusions can be drawn for the BFI as a whole. Finally, a banking service might be different from other retail transactions, future research is to show the generalizability of the results.

Future research could test whether personality traits and channel preferences can be compensated by building decision support systems. Therefore, textual or visual decisional guidance could be implemented using seals or digital nudges [59–62]. Moreover, the decision support could be implemented adaptively by first assessing the characteristics and preferences, and then be adapted in real-time to match them. In addition, the trait of extraversion has produced contradicting results and more research is needed to clarify its role in online environments. Finally, the study should be repeated with a representative sample or with other products and services to be able to generalize the results.

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