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## Customer Satisfaction in Digital Service Encounters: The Role of Media Richness, Social Presence, and Cultural Distance<sup>1</sup>

by

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# CUSTOMER SATISFACTION IN DIGITAL SERVICE ENCOUNTERS: THE ROLE OF MEDIA RICHNESS, SOCIAL PRESENCE, AND CULTURAL DISTANCE

*Research*

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## Abstract

*Digital technologies are increasingly used for communication between service personnel and customers. These digital service encounters bring along two changes: First, diverse digital channels such as text, audio, or video communication vary in the perceived media richness and perceived social presence of the counterpart. Second, digital channels allow service providers to employ service personnel remote from the customer and to serve a geographically wider, potentially global market. In this, there is a rise of intercultural service encounters. Therefore, we investigate how customer satisfaction is influenced by the type of digital communication channel and by cultural differences between service personnel and customer. We build a theoretical model on the effect of communication channels and cultural differences on customer satisfaction in digital service encounters. Afterwards, we collect data through an internet-based survey including a simulation of a digital service encounter and cultural differences. We use the data and structural equation modelling to test our theoretical model. Our results indicate that perceived media richness and perceived social presence play a substantial role for customer satisfaction. Contrary to prior literature on offline service encounters, our results suggest that perceived cultural distance does not affect customer satisfaction in digital service encounters.*

*Keywords: Digitalization, Customer Relationship Management, Cross-Cultural Context, Digital Channels as Global Gateway*

## 1 Introduction

Digitalization transforms business and private life (e.g., Keil et al., 2001; Piccinini et al., 2015). This transformation is driven by technological innovations like fast internet connections, smart and connected products (technology push; Lasi et al., 2014; Kyoseva et al., 2014), and by changing consumer demand and behavior (market pull; Leimeister et al., 2014; Nüesch et al., 2015). Part of this transformation affects the interaction of firms with their customers (e.g., Gimpel and Röglinger, 2015; Verhoef et al., 2015). Interactions are more and more conducted via digital channels like email, website, social media, audio or video chat (Thurlow et al., 2004). Examples for digital service encounters include personal consultation, requests, and complaints (Heinonen, 2008). For firms, the benefits from using digital channels include the ability to address a wider, less locally-constrained market and to lower costs compared to pre-digital, offline channels. For customers, the benefits from using digital channels include primarily convenience such as 24/7 availability of services, for example, when service personnel is located in different locations around the world and interacts with the customer via digital channels.

The increasing usage of digital channels for interpersonal communication in service encounters comes along with two distinct changes: First, different channels have different levels of media richness (Guo and Turner, 2005; Massey et al., 2001) and social presence of the counterpart in a communication (Massey et al., 2001). Second, digital channels facilitate supra-regional and international customer interactions – here, information systems connect actors in different geographic locations and can be seen as global gateway for service providers to operate in a wider market. This leads to an increasing number of intercultural service encounters, i.e. interactions between employees and customers with different cultural backgrounds. Beyond digitalization, globalization and migration add to the incidence of intercultural service encounters. Thereby, culture has visible (e.g., language, music, rituals, clothes) and invisible (e.g., values, norms, belief, attitudes, expectations) areas (Hall, 1976). While visible areas of culture such as clothes can be perceived directly, invisible areas of culture like attitudes influence expectations and behavior. Both changes – varying media richness and social presence between channels as well as partially increasing cultural distance between service provider and customer – might affect customer satisfaction (e.g., Simon and Peppas, 2004; Sharma et al., 2012; Wang et al., 2012) and in turn customer loyalty and firm value (e.g., Gupta et al., 2004; Luo and Homburg, 2007). Thus, it is essential for service providers to gain a detailed understanding of the influence of these factors on customer satisfaction. Based on this information, they can define their multi-channel strategy and inform the matching of service personnel to customers. Our central research question is:

*How do media richness, social presence, and cultural difference influence customer satisfaction in digital service encounters?*

Our paper is structured following the “reference guide for researchers” of Urbach and Ahlemann (2010, p. 5), who presented a “framework for empirical research”: We review the theoretical background (§2) and develop a theoretical framework of the impact of the digital communication channel and cultural differences on customer satisfaction (§3). We operationalize the theoretical model and obtain data from a survey among service customers (§4). In this, we simulate a digital service encounter and subsequently query the survey participant, having the role of the customer, for her or his satisfaction. Each participant faces one out of six scenarios in a 3x2 full factorial design varying between common digital communication channels (text, audio, and video communication) and cues on the culture of the service employee (common German name, clear language, and unremarkable attire in a Western society as compared to common Turkish name, light accent, and wearing a headscarf). We use the survey data to test our theoretical model by means of structural equation modeling (§5), discuss the results (§6), and conclude (§7).

## 2 Theoretical Background

Our research is based on the existing literature on marketing, customer relationship management (CRM), digital communication channels, and intercultural service encounters. Since customer satisfaction is a key factor to realize customer retention, customer value, and thus business success (e.g., Anderson et al., 2004; Aksoy et al., 2008; Williams and Naumann, 2011), it is a focal construct in our investigation. Customer satisfaction is an aggregate measure of all experiences with an organization and its products and services (Payne and Frow, 2005; Verhoef et al., 2009). Thereby, a single customer experience arises through a direct or indirect interaction with an organization or its products and services and implicates customer involvement on rational, emotional, sensory, physical and/or spiritual levels (Gentile et al., 2007; Meyer and Schwager, 2007). Central antecedents of customer experience are the service interface including the technology used and the social environment including the service personnel (Verhoef et al., 2009). As argued in the introduction, both tend to be different in digital service encounters as compared to pre-digital, offline service encounters.

### 2.1 Effect of communication channels on customer satisfaction

Through the increasing importance of e-commerce and digital communication technologies, organizations have to decide about their provision of digital communication channels for customer interaction. From the customer point of view, these communication alternatives have divergent characteristics such

as media richness (i.e. information transportation capability), social presence, synchronism/asynchronism, and rehearsability (Massey et al., 2001; Thurlow et al., 2004). These characteristics might influence customer satisfaction (e.g., He et al., 2012; Tang and Wang, 2011).

Media richness is characterized by the capacity to process rich information (Lengel and Daft, 1984). Following Lengel and Daft (1984), media richness has four facets: (1) Feedback capability, i.e. the ability of the medium to facilitate immediate feedback and clarification of issues during dialogs; (2) Multiple cues/communication channels (including body language, voice inflection, physical representations) facilitated by the medium; (3) Language Variety, i.e. the ability of the medium to facilitate dialogs involving both numbers and natural language; (4) Personal focus/source, i.e. the ability of the medium to convey the personal feelings and emotions of dialog partners. Digital communication channels can be characterized as high or low in “richness” based on their ability to facilitate shared meaning, i.e. insight and rapid understanding (Daft et al., 1987). Therefore, according to existent research, concerning media richness we can rank face-to-face communication (e.g., video chat as an approximation of face-to-face interaction), audio communication (e.g., voice over IP), and text communication (e.g., email, instant messaging) in a descending order with respect to media richness (e.g., Daft et al., 1987; Guo and Turner, 2005).

Social presence means “the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationship” (Short et al., 1976, p. 65). Representing the degree of person-to-person awareness in an interaction, social presence became a core construct in computer-mediated communication and gained remarkable interests from communication and human-computer interaction researchers (Tang and Wang, 2011). In reference to existing research, concerning social presence we can similarly rank face-to-face communication (e.g., video chat as an approximation of face-to-face interaction), audio communication (e.g., voice over IP), and text communication (e.g., email, instant messaging) in a descending order (Massey et al., 2001; Sallnäs, 2005).

In summary, we conclude that media richness and social presence differ between commonly used channels in digital service encounters and that customer satisfaction may depend on the customer’s perception of both media richness and social presence.

## 2.2 Effect of cultural distance on customer satisfaction

Intercultural service encounters occur when employees and customers with different cultural backgrounds interact with each other. In this, cultural differences can be originated by visible aspects such as language (e.g., accent) or clothes on the one hand and invisible aspects like belief or expectations (e.g., related to employee behavior) on the other hand (Hall, 1976). Intercultural service encounters possibly occur in domestic as well as international markets. Thereby, increased digital communication via the internet facilitates location-independent customer-employee interactions and thus leads to an increasing number of intercultural interactions.

Intercultural CRM aims at realizing customer satisfaction and, thus, profitable customer relations across the multi-cultural customer and personnel base. Existing research on intercultural CRM can be categorized in six research directions: (1) General intercultural aspects in customer-employee interactions (e.g., Youngdahl et al., 2003; Ribbink and Grimm, 2014), (2) comparative assessment of service quality in diverse cultures (e.g., Espinoza, 1999; Malhotra et al., 2005), (3) assessment of customer satisfaction in intercultural service encounters (e.g., Hopkins et al., 2009; Tam et al., 2014), (4) comparison of customer reactions after service failures in different cultures (e.g., Wang and Mattila, 2011; Johnson et al., 2013), (5) investigation of the importance of intercultural competence (e.g., Ascalon et al., 2008; Ihtiyar and Ahmad, 2014), and (6) various ways for acquisition of intercultural competence (e.g., Bartel-Radic, 2006; Antal and Friedman, 2008). In all these streams, except to van Birgelen et al. (2002) researchers solely investigate service encounters in non-digital contexts such as retail grocery stores or restaurants (e.g., Sharma et al., 2009, 2012). van Birgelen et al. (2002) examine variations in the assessment of service quality and customer satisfaction related to different national cultural characteristics for the after-sales service formats “face-to-face”, “voice-to-voice”, and “bit-to-bit”. They find that, in contrast to the

traditional face-to-face service encounter, the perceived quality-satisfaction-relationship is particularly moderated by national culture in the case of technology-based after-sales services. While existent research focuses on the divergent assessment of service quality or satisfaction across different cultures, so far, there is no research on the impact of perceived cultural distance on customer satisfaction in digital service encounters. Therefore, it is our purpose to investigate the impact of cultural differences on customer satisfaction in digital service encounters. Regarding the categorization in six research streams, our work primarily contributes to stream (3), the assessment of customer satisfaction in intercultural service encounters. Moreover, we also integrate some aspects of research stream (5), the investigation of the importance of intercultural competence .

When regarding intercultural service encounters, a lot of researchers are interested in the impact of a perceived cultural distance on the satisfaction of customers and employees (e.g., Sharma et al., 2009, 2012; Tam et al., 2014). It has been argued that perceived cultural distance influences customer satisfaction (Sharma et al., 2009) – for intercultural service encounters in restaurants, a survey study by Sharma et al. (2012) surprisingly showed that increasing perceived cultural distance increases customer satisfaction. Several researchers (e.g., Sizoo, 2007; Ihtiyar et al., 2013) analyze the role of experiences and abilities to appropriately handle cultural differences – named “intercultural competence”. Thus, in our research, we are interested in the role of perceived cultural distance and intercultural competence in service encounters via digital channels.

### 3 Model Development

We developed a theoretical model of the impact of the choice of a digital communication channel and cultural differences on customer satisfaction in digital services. Our model is composed of well-established constructs from communication theory (especially Short et al., 1976; Lengel and Daft, 1984; Daft and Lengel, 1986; Daft et al., 1987; Canary and Spitzberg, 1987) on the one hand, and existent constructs from Sharma et al. (2009)’s conceptual framework on intercultural service encounters on the other hand. Core constructs, causal relationships among these constructs, and testable propositions are presented in the following sub-sections by means of words, a table, and a diagram. The scope of our theory are digital service encounters with both human customers and human service provider personally interacting with the customer via digital channels.

#### 3.1 Constructs

In order to take account for the different perceptions of the digital communication channels, we use “media richness”, “social presence”, and “channel competence” from communication theory (Short et al., 1976; Lengel and Daft, 1984; Daft and Lengel, 1986; Daft et al., 1987; Canary and Spitzberg, 1987; Tang and Wang, 2011; Ledford, 2012; Armengol et al., 2015). We include “perceived cultural distance” and “intercultural competence” from Sharma et al. (2009)’s intercultural service encounter (ICSE) framework in our theoretical model, to account for the role of cultural distances. Furthermore, we control the digital channel (CD) and the cultural distance (CD). Table 1 shows a summary of the core constructs including definitions and references.

#### 3.2 Hypotheses

The hypotheses of our theoretical model are summarized in Figure 1 and are discussed in the following. Massey et al. (2001) characterize various media capacity measures for different communication technologies on a low-to-high scale. According to their illustration, in video-based communication (e.g., videoconference) media richness and social presence are perceived relatively high, in audio communication (e.g., voice over IP) media richness and social presence are perceived relatively medium, and in text communication (e.g., instant messaging) the same measures are perceived relatively low (Massey et al., 2001). Following this categorization, we assume a descending order for video, audio, and text communication in perceived media richness (PMR) (H1a) and perceived social presence (PSP) (H1b).

H1b is additionally supported by the results of Sallnäs (2005)' work who shows a higher PSP in a videoconference than in an audioconference and a lower PSP in text communication than in video- and audioconferences.

Construct	Definition	References
Digital Channel (DC)	Methods for customer-company interactions through digital technology interfaces such as email, text-based live chat on webpages, audio or video communication.	Heinonen and Michelsson (2010)
Perceived Media Richness (PMR)	Customer's perception of the information carrying capacity of media.	Lengel and Daft (1984), Daft and Lengel (1986), Daft et al. (1987), Ledford (2012)
Perceived Social Presence (PSP)	Customer's perception of person-to-person awareness in an interaction.	Short et al. (1976), Sallnäs (2005), Tang and Wang (2011), Wang et al. (2012), He et al. (2012)
Channel Competence (CC)	Customer's experiences and abilities regarding the effective and appropriate usage of a specific communication channel.	Canary and Spitzberg (1987), Polasik and Wisniewski (2009), Verdugo and Fierro (2014), Armengol et al. (2015)
Cultural Distance (CD)	Overall cultural difference between customer and employee as a result of differences in various cultural elements such as language, religion, social structure, standard of living, and values.	Triandis (2000), Sharma et al. (2009), Sharma et al. (2012), Tam et al. (2014)
Perceived Cultural Distance (PCD)	Customer's perception of CD to employee	
Intercultural Competence (IC)	Customer's ability to think and act in appropriate ways with people from other cultures. Customers with higher IC display more respect and empathy for people from other cultures.	Hammer et al. (1978), Hammer et al. (2003), Lustig and Koester (2003), Friedman and Antal (2005), Antal and Friedman (2008), Ihtiyar and Ahmad (2014)
Customer Satisfaction (CS)	Customer's overall evaluation of total interaction, purchase, and consumption experience.	Fornell et al. (1996), Sharma et al. (2009)

Table 1. Model constructs.

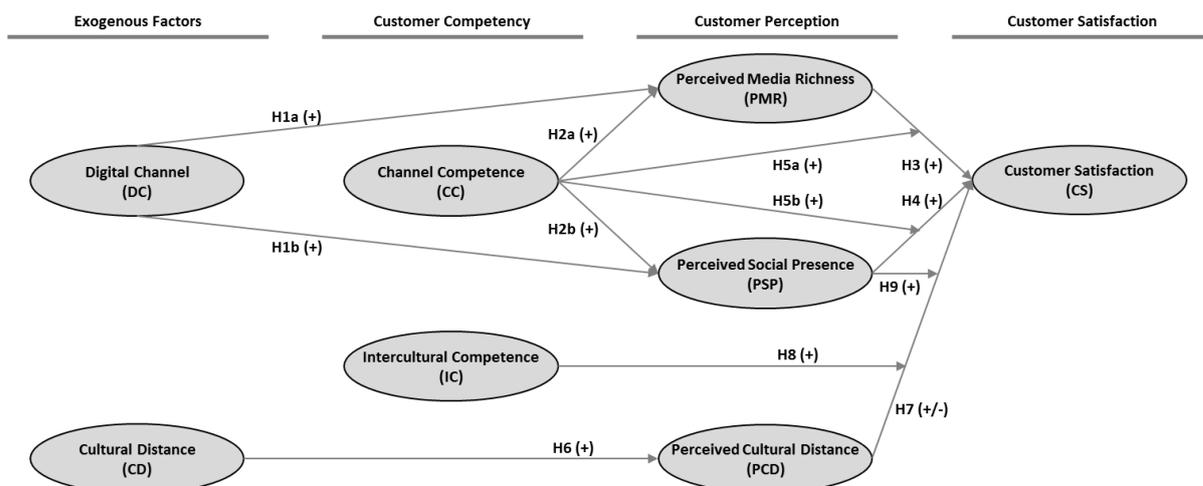


Figure 1. Theoretical model on the influence of digital channel and cultural distance on customer satisfaction.

Moreover, since Armengol et al. (2015) found that PMR is positively influenced by a persons' experience with the specific medium, we expect a positive influence of CC on PMR (H2a). According to Tang and Wang (2011) the user's experience with a medium influences PSP. Furthermore, Wrench and Punnant-Carter (2007) show that increased skill in virtual environments augments PSP. Hence, we expect a positive impact of CC on PSP (H2b).

If we think about a mediums' capacity to transport information on various ways (e.g., spoken and body language), we expect that customers feel more comfortable in an interaction the larger their possibilities to express themselves are. Therefore, grounded on the work of several researchers (Simon and Peppas, 2004; Sevinc and D'Ambra, 2004; Pinsonneault et al., 2011; Ogara and Koh, 2014) we expect a positive impact of PMR on CS (H3). Thus, it is anticipated that a higher PMR leads to a greater CS. On the basis of existing research conducted by Tang and Wang (2011), Ogara and Koh (2014), Wang et al. (2012), and He et al. (2012) which find a positive impact of PSP on CS in various contexts, we expect a positive influence of PSP on CS (H4).

The results of Harrison and Rainer (1996)'s study show a positive interdependency between low computer anxiety and user satisfaction and again a positive interdependency between computer usage and user satisfaction. Thus, we expect that a higher CC intensifies the positive influence of PMR (H5a) and PSP (H5b) on CS.

We hypothesize that customers at least partially perceive cultural distance (CD) and, thus, a high CD leads to a higher perceived cultural distance (PCD). This is hypothesis H6. PCD in turn is hypothesized to affect CS (H7). This relationship derives directly from the ICSE framework (Sharma et al., 2009, 2012). It is hypothesized that the relationship from PCD to CS is mediated by interaction comfort, and perceived service level on the one hand and by inter-role congruence and adequate service level on the other hand. For parsimony of our model, we refrain from including these mediators. Once the effect of PCD on CS is established for digital service encounters and the relationship with digital channels is clarified, the model might be extended in this direction. For H7, we do not have a directed hypothesis due to the contradictory prior literature. Specifically, Sharma et al. (2009) hypothesize a negative impact of PCD on CD. Sharma et al. (2012) reiterate this hypothesis but then empirically demonstrate a positive relationship. Tam et al. (2014) also show a positive influence of PCD on CS. Contrary to these findings, Rizal et al. (2015) find that consumers are more satisfied (dissatisfied) in service encounters with service providers of the same (different) ethnic affiliation as themselves.

Like in the original ICSE model (Sharma et al., 2009, 2012), we assume that IC moderates the effect from PCD on CS (H8). Like in the ICSE model and regarding the results of Sharma and Wu (2015)'s work we expect that a high level of IC intensifies the effect of PCD on CS whichever direction it takes. From Chen et al. (2008)'s work on the cultural impact on trust in virtual communities we hypothesize that a high PSP entails a higher level of trust and thus intensifies the influence of PCD on CS (H9). Our assumption is additionally supported by Ke and Kwak (2013)'s results showing interdependencies between cultural differences and PSP and satisfaction levels in a web-based education setting.

Our theoretical model for assessing the impact of the choice of the digital communication channel on customer satisfaction is shown in Figure 1. Each of the arrows represents one of the hypotheses to be tested. We transformed the theoretical model into a structural equation model, which we tested empirically.

## 4 Research Method and Data

For the empirical assessment of our theoretical model, we apply survey-based quantitative research, which is "[...] considered to be superior to qualitative approaches with respect to generalizability" (Urbach et al., 2010, p. 188). In the following, we firstly describe the construct operationalization before we secondly introduce the research setting and data collection.

#### 4.1 Construct operationalization

To operationalize the model's constructs, we follow the suggestions of Urbach et al. (2010) and build on measures by established research (Fornell et al., 1996; Nowak and Biocca, 2003; Sharma et al., 2012; Armengol et al., 2015). Hence, we rely on validated scales (Table 2), slightly modified them for the research context at hand, and decided to measure them based on a seven-point Likert-type scale (1 = strongly disagree, 7 = strongly agree) survey instrument. For construct PSP, however, we used different wording (1 = no extent, 7 = full extent) and for the construct CS we relied on a ten-point Likert-type scale according to the American Customer Satisfaction Index (Fornell et al., 1996).

We firstly discussed the choice of items in detail within the research team and secondly refined the selection in order to correspond to the respective construct. Thirdly, to ensure content validity, we distributed items as well as deduced corresponding survey wording (Table 4) amongst eight colleagues and asked for feedback on comprehensibility, relevance, and completeness.

Construct	Items	#	References
Channel Competence (CC)	experience, ease of use, competence, understanding, comfort, noviceness [rev]	6	Armengol et al. (2015)
Perceived Media Richness (PMR)	resolve doubts, clarify situations, present information, clarify controversies	4	Armengol et al. (2015)
Perceived Social Presence (PSP)	assess reactions, face-to-face meeting, same room, reality, get to know new people	5	Nowak and Biocca (2003)
Intercultural Competence (IC)	convenience with: ethnicity, nationality, language, customs and culture, religion	5	Sharma et al. (2012)
Perceived Cultural Distance (PCD)	ethnicity, nationality, language, customs and culture, religion	5	Sharma et al. (2012)
Customer Satisfaction (CS)	happiness, pleasure, satisfaction, expectancy, ideal conception	5	Fornell et al. (1996), Sharma et al. (2012)

Table 2. Selected measures.

#### 4.2 Research setting and data collection

For our study, we simulated a (previously recorded) digital service encounter, more precisely, an online application for a credit card at a fictitious bank. We decided for this setting because digital service encounters are both comparatively common in financial services industry (Sohn and Tadisina, 2008) and may consequently appear realistic and credible for our survey participants. To realize the aspired manipulation of diverging digital channels (DC), we decided to create three different sub-settings: an online application for a credit card via text, audio, and video communication. The content of the interaction is the exact same in all three settings: to ensure comparability between the different digital channels, both written (text communication) and spoken (audio and video communication) text within the settings are identical. However, the levels of media richness and social presence of the three channels differ and so do the cues to cultural distance. While text communication “just” displays the name of the digital service desk employee, audio communication additionally reveals the voice (i.e., also potential accent), and video communication moreover the visual attire (i.e., also potential atypical clothing or religious items). With focus on the aspired manipulation of diverging cultural distances (CD), we engaged a female actor to represent a typical local service desk employee (i.e., common German name, clear language, and unremarkable attire) likely representing a low CD for most participants recruited in Germany as well as a foreign service desk employee (i.e., common Turkish name, light accent, and wearing a headscarf) likely representing a high CD for most participants. As we engaged the same person twice, attached great importance on consistent professionalism, and (successfully) pretested the different scenarios amongst eight colleagues, we are very confident that our research setting regarding the

manipulation of diverging cultural distances (CD) is sufficient. Summing up, with three different settings for DC (0 = chat; 1 = audio; 2 = video) and two for CD (0 = German; 1 = Turkish), we have six different combined scenarios in total (i.e., German\_text, German\_audio, German\_video, Turkish\_text, Turkish\_audio, Turkish\_video), of which exactly one scenario was randomly assigned to each participant. The invitations for the study were distributed via several university newsletters and Facebook presences. In the online experiment, the participants clicked through the dialogue of the assigned scenario and afterwards took part in the survey<sup>1</sup>.

To mitigate non-response bias, we offered incentives (i.e., vouchers for an online retailer) and sent reminders where applicable. Furthermore, we designed our survey carefully in a professional way and emphasized the importance of participating in this study. To prevent possible common method bias (CMB), we took the following actions: First, especially as intercultural topics may be perceived critically and social desirability bias might arise, we provided a serious confidentiality statement. Second, at the beginning of the survey, we explicitly mentioned that all answers are neither correct nor false, hence encouraging the participants to be as honest as possible. Third, we foremost asked the questions for CS before all others (e.g., PCD) in order to avoid any bias towards an apparently desired outcome. However, even though we are positive that our preventive measures avoid both non-response and common method bias, we additionally relied on Harman's single-factor test (Podsakoff et al., 2003; Malhotra et al., 2006) to hedge our bets. To do so, we executed an exploratory factor analysis (c.f. Segars, 1997) and checked if "[...] (a) a single factor will emerge from the factor analysis or (b) one general factor will account for the majority of the covariance among the measures" (Podsakoff et al., 2003, p. 889). With six factors featuring an Eigenvalue above 1.0 emerging and the first factor accounting for just 22% of the total variance, CMB is apparently not distorting the results.

In total, 732 participants started with one of the mentioned six scenarios, whereof 659 finished the survey subsequent to the simulated digital service encounter. 131 of them, however, did not agree that the scenario at hand appeared realistic and credible (control question), leading to finally 528 valid observations. This sample size thereby clearly exceeds the postulated requirements to achieve statistical power of at least 80% (Cohen, 1992). Descriptive statistics of participants are displayed in Table 3, the randomization of participants to the six different scenarios is depicted in Table 4.

Male / female (%)	Age mean / SD	Migration background (%)	University degree (%)
246 (47%) / 282 (53%)	23.84 / 5.59	70 (13%)	210 (40%)

Table 3. Descriptive statistics of participants.

	DC (0 = chat)	DC (1 = audio)	DC (2 = video)
CD (0 = German)	118 (22%)	68 (13%)	66 (13%)
CD (1 = Turkish)	131 (25%)	71 (13%)	74 (14%)

Table 4. Number of participants among the six different scenarios (percentage in parentheses).

Regarding homogeneity in terms of baseline demographic characteristics, participants in all six scenarios did not show any significant differences in the distribution of gender, university degree ( $\chi^2$  tests), and age (ANOVA). However, since the distribution of migration background (MB) is heterogeneous, we decided to control for this (single control question) and consequently added MB as covariate to our research model.

<sup>1</sup> A detailed description of the experiment/survey is available upon request.

## 5 Empirical Analyses and Results

Using the collected empirical data from the survey (§4), we assess the measurement properties and test the derived hypotheses (§3) in the following. To do so, we draw on the partial least squares (PLS) structural equation modelling (SEM) approach (Chin, 1998; Wold, 2004), using the software *SmartPLS 3* (Ringle et al., 2015). In line with Hair et al. (2011, p. 144), we deliberately applied PLS-SEM because our “research is [...] an extension of an existing structural theory”. Furthermore, as mentioned by Urbach and Ahlemann (2010), PLS-SEM is advantageous with focus on measurement scales, sample size, and distribution of residuals. To validate our assessment and to test the significance of the results, we rely on a non-parametric bootstrap procedure (Efron, 1979; Efron and Tibshirani, 1993) with 5,000 subsamples, which are recommended as a rule of thumb (Hair et al., 2014).

### 5.1 Assessment of measurement models

As we used reflective indicators for the operationalization of the model’s constructs, we test the reflective measurement models for indicator reliability, internal consistency reliability, convergent validity, and discriminant validity (Urbach and Ahlemann, 2010; Hair et al., 2014). With focus on indicator reliability, items’ indicators with outer loadings below .700 are considered too unreliable (Chin, 1998). Thus, we decided to remove items PSP1, PSP5, CC6, and PCD3. Doing this, all remaining items significantly load above the mentioned threshold of .700 (Table 6). Concerning internal consistency reliability, we draw on both Cronbach’s Alpha (CA) (Cronbach, 1951) and composite reliability (CR) (Werts et al., 1974). As shown in Table 6, both CA and CR values are well above the recommended minimum of .700 (Nunnally and Bernstein, 1994) or .600 (Bagozzi and Yi, 1988). In terms of convergent validity, we rely on average variance extracted (AVE) (Fornell and Larcker, 1981) as criterion. As all values exceed the postulated minimum of .500 (Bagozzi and Yi, 1988; Segars, 1997), we deliberately assume appropriate convergent validity (Table 6). Regarding discriminant validity, we apply the Fornell-Larcker criterion (Fornell and Larcker, 1981). As shown in Table 5, the square root of each construct’s AVE is higher than the respective interconstruct correlations. This indicates that all constructs are sufficiently different, hence pointing out discriminant validity. Summing up, the assessment of the measurement models did not discover any cause for concern – quite the opposite – all results indicate excellent reliability as well as validity and allow assessment and interpretation of the structural model.

	<b>PMR</b>	<b>PSP</b>	<b>CC</b>	<b>PCD</b>	<b>IC</b>	<b>CS</b>
<b>PMR</b>	<b>.888</b>					
<b>PSP</b>	.513	<b>.855</b>				
<b>CC</b>	.172	.220	<b>.828</b>			
<b>PCD</b>	.105	.021	-.060	<b>.901</b>		
<b>IC</b>	.106	-.044	.055	-.102	<b>.847</b>	
<b>CS</b>	.371	.405	.086	-.020	.095	<b>.926</b>

Table 5. Interconstruct correlations and square root of the AVE (diagonal).

### 5.2 Assessment of structural model

After supporting both reliability and validity of the measurement models, we assess the structural model’s quality and the structural model’s relationships (i.e., collinearity issues, significance and relevance of the coefficients, and effect size).

Relating to the structural model’s quality, we determined the explanatory power (squared multiple correlations  $R^2$ ) and predictive relevance (cross-validated redundancy measures  $Q^2$ ). As depicted in Table 7, the explained variance of the variable PSP ( $R^2 = .128$ ) is weak while the values for PMR ( $R^2 = .219$ ), PCD ( $R^2 = .480$ ), and CS ( $R^2 = .249$ ) can be perceived moderate, hence emphasizing predictive accuracy (Chin, 1998).

Item	Survey Wording	Loading	CA	CR	AVE
<b>Perceived Media Richness (PMR)</b>					
PMR1	<chat/audio/video> allows me to resolve complex doubts and questions	.891 <sup>***</sup>	.910 <sup>***</sup>	.937 <sup>***</sup>	.788 <sup>***</sup>
PMR2	<chat/audio/video> allows me to clarify confusing situations	.910 <sup>***</sup>			
PMR3	<chat/audio/video> allows me to present complex information in a simple way	.886 <sup>***</sup>			
PMR4	<chat/audio/video> allows me clarify controversies caused by lack of information	.861 <sup>***</sup>			
<b>Perceived Social Presence (PSP)</b>					
PSP1	To what extent did you feel able to assess your partner's reactions to what you said?	–	.818 <sup>***</sup>	.891 <sup>***</sup>	.731 <sup>***</sup>
PSP2	To what extent was this like a face-to-face meeting?	.893 <sup>***</sup>			
PSP3	To what extent was this as if you were in the same room with your partner?	.821 <sup>***</sup>			
PSP4	To what extent did your partner seem "real"?	.849 <sup>***</sup>			
PSP5	To what extent did you feel you could get to know someone that you met only through this system?	–			
<b>Channel Competence (CC)</b>					
CC1	I am very experienced using <chat/audio/video>	.766 <sup>***</sup>	.900 <sup>***</sup>	.910 <sup>***</sup>	.675 <sup>***</sup>
CC2	I feel that <chat/audio/video> is easy to use	.811 <sup>***</sup>			
CC3	I feel competent using <chat/audio/video>	.846 <sup>***</sup>			
CC4	I understand how to use all of the features of the <chat/audio/video> system	.761 <sup>***</sup>			
CC5	I feel comfortable using <chat/audio/video>	.907 <sup>***</sup>			
CC6	I feel that I am a novice using the <chat/audio/video> system [rev]	–			
<b>Perceived Cultural Distance (PCD)</b>					
PCD1	Race or ethnicity is very different from me	.921 <sup>***</sup>	.923 <sup>***</sup>	.945 <sup>***</sup>	.811 <sup>***</sup>
PCD2	Nationality is very different from me	.903 <sup>***</sup>			
PCD3	Language is very different from me	–			
PCD4	Customs and culture are very different from me	.899 <sup>***</sup>			
PCD5	Religious beliefs are very different from me	.878 <sup>***</sup>			
<b>Intercultural Competence (IC)</b>					
IC1	I feel comfortable dealing with people whose... ...race or ethnicity is very different from me	.875 <sup>***</sup>	.902 <sup>***</sup>	.901 <sup>***</sup>	.683 <sup>***</sup>
IC2	...nationality is very different from me	.868 <sup>***</sup>			
IC3	...language is very different from me	.777 <sup>***</sup>			
IC4	...customs and culture are very different from me	.827 <sup>***</sup>			
IC5	...religious beliefs are very different from me	.728 <sup>***</sup>			
<b>Customer Satisfaction (CS)</b>					
CS1	What was your overall happiness with the service?	.950 <sup>***</sup>	.959 <sup>***</sup>	.968 <sup>***</sup>	.858 <sup>***</sup>
CS2	What was your overall pleasure with the service?	.946 <sup>***</sup>			
CS3	What was your overall satisfaction with the service?	.938 <sup>***</sup>			
CS4	To what extent did the service meet your expectations?	.883 <sup>***</sup>			
CS5	How well did the service compare with the ideal service?	.914 <sup>***</sup>			
*** significant at p < .001; ** significant at p < .010; * significant at p < .050;					

Table 6. Item outer loadings and measurement quality indicators from bootstrapping.

Hypothesis	Relationship	$\beta$	$f^2$	Support (effect)	VIF	R <sup>2</sup>	Q <sup>2</sup>
H1a	DC→PMR	.453***	.239***	Yes (medium)	1.119	.219***	.167
H2a	CC→PMR	.323***	.122***	Yes (small)	1.119		
H1b	DC→PSP	.288***	.087**	Yes (small)	1.119	.128***	.083
H2b	CC→PSP	.318***	.106***	Yes (small)	1.119		
H6	CD→PCD	.672***	.832***	Yes (large)	1.001	.480***	.373
[Covariate]	MB*CD→PCD	-.153***	.048	Yes (-)	1.005		
H3	PMR→CS	.225***	.048*	Yes (small)	1.464	.249***	.192
H5a	CC*PMR→CS	-.074	.008	No	1.324		
H4	PSP→CS	.294***	.082**	Yes (small)	1.436		
H5b	CC*PSP→CS	-.019	.003	No	1.302		
H7	PCD→CS	-.036	.004	No	1.040		
H8	IC*PCD→CS	.098*	.018	Yes (-)	1.021		
H9	PSP*PCD→CS	-.018	.003	No	1.014		

\*\*\* significant at p < .001; \*\* significant at p < .010; \* significant at p < .050;

Table 7. Results of the structural assessment.

In addition, to show that exogenous constructs have predictive relevance, we used the blindfolding procedure (Tenenhaus et al., 2005) for a nonparametric Stone-Geisser test (Stone, 1974; Geisser, 1975). As all values of Q<sup>2</sup> are positive (Table 7), also predictive relevance can be assumed (Hair et al., 2014).

Now focusing on the particular relationships, we first calculated variance inflation factors (VIF), which are all far below 5.0 (Table 7), thus indicating absence of collinearity issues (Hair et al., 2014). There-with having ensured a reasonable estimation, we analyzed the standardized path coefficients ( $\beta$ ) and their significance to test the respective hypotheses. Furthermore, we also derived the effect sizes ( $f^2$ ), which indicate small (~ .02), medium (~ .15), and large (~ .35) effects (Cohen, 1988) of the latent variables (Table 7).

In summary, the assessment of the structural model reveals eminent quality. However, not all hypotheses are supported: as shown in Table 7, the standardized path coefficients ( $\beta$ ) of H5a, H5b, H7, and H9 neither do show any notable effect size ( $f^2$ ) nor are they significantly different from zero (5% level). All other hypotheses are supported. The empirical assessment of the complete research model is depicted in Figure 2 and the interpretation of the results is presented in the next section.

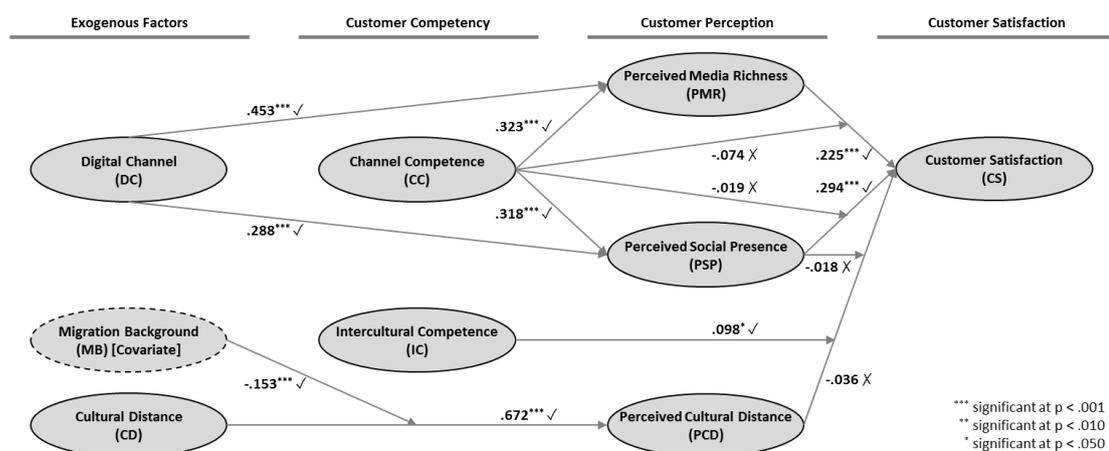


Figure 2. Results of the research model.

## 6 Discussion of the Results and Conclusion

After successfully analyzing both measurement and structural models, we firstly discuss theoretical and practical contributions before secondly outlining limitations and future research.

### 6.1 Theoretical and practical contributions

Most hypotheses from our theoretical model are supported by the empirical assessment (Table 7; Figure 2). In summary, we see by and large the expected effect of digital channels on customer satisfaction with the trend richer digital communication media improve customer satisfaction. Surprisingly, we do not see a substantial effect of cultural distance on customer satisfaction and interestingly, we do not see evidence for an interaction of digital channel and cultural distance in their effects on customer satisfaction. In more detail: The empirical results of our study support the theoretical argument that DC (H1a/H1b) as well as CC (H2a/H2b) influence both PMR and PSP. Likewise, CD significantly influences PCD (H6). With focus on the dependent variable CS, just PMR (H3), PSP (H4), and the moderation IC\*PCD (H8) show a significant impact, though the effect size is small. However, the moderation CC\*PMR and CC\*PSP (H5a/H5b) cannot be supported. Moreover, neither PCD (H7) nor the moderation PSP\*PCD (H9) is significantly influencing CS. From a theoretical point of view, our contribution to existing literature on information systems in general and digital, intercultural service encounters in particular is threefold:

*First, we link theory on digital communication and CRM:* As hypothesized, the results reveal that a higher media richness and higher social presence apparently positively influences customer satisfaction which is in line with prior assumptions (Simon and Peppas, 2004; Sevinc and D'Ambra, 2004; Pinsonneault et al., 2011; Tang and Wang, 2011; He et al., 2012; Wang et al., 2012; Ogara and Koh, 2014). Here we provide further evidence for an established theoretical relationship.

*Second, we extend existing literature on intercultural service encounters:* To the best of our knowledge, we are the first to analyze the effect of perceived cultural distance on customer satisfaction in digital service encounters. For pre-digital, offline services, marketing research has established the existence of such an effect (Sharma et al., 2009, 2012; Sharma and Wu, 2015). Our findings, surprisingly, suggest that cultural distance does not affect customer satisfaction in digital service encounters. This new finding may spur further research into differences in the antecedents of customer satisfaction in digital vs. non-digital customer relations.

*Third, we bring together cross-disciplinary research on communication channels and cultural distance:* Our manipulation check supports the hypothesis (H6) that perceived cultural distance is substantially affected by the variation of the service employee's culture across all three digital communication channels. Consequently, digital communication obviously transports cultural characteristics. We theorized that the ability of digital channels to transport culture might depend on the perceived social presence of the counterpart and, consequently, there might be an interrelation of digital channel and cultural distance in affecting customer satisfaction but interestingly do not see evidence for this hypothesis. This is a new result suggesting that there is no obvious need to further research the interaction of digital channels and cultural distance in digital service encounters.

Alongside these theoretical contributions, this study also contributes to business practice:

*First, we show that it might be worth investing in richer digital media for interaction with customers:* We see an influence of the digital channel on customer satisfaction via the increasing perceived media richness and perceived social presence. Noteworthy, this is the case with the exact same information and service provided via different communication media. Hence, companies should consider enriching communication channels, consequently providing a higher social presence in digital service encounters among employees and service personnel, as this increases customer satisfaction. In this, the benefits have to be balanced with costs for richer channels.

*Second, we provide insights that cultural differences might not be the primary issue behind globalization and digitalization.* One could hypothesize that the cultural background of service employees is a relevant

factor to consider, for example, by primarily hiring employees whose cultures fit the prevalent culture in the customer base or by real-time assignment of employees to individual customers. For digital service encounters, our results do not suggest that such strategies are important to improve customer satisfaction. Neither does perceived cultural distance show an effect on customer satisfaction in text communication where cues on the cultural background are minimal nor does it appear to play a role in the richer audio and video communication.

## **6.2 Limitations and future research**

Besides the results above, there are limitations that leave room for future research:

First, regarding the operationalization of our six scenarios, we just simulated one digital service encounter. Hence, due to the limited interactivity and the limited, only stylized cues on culture, our participants may not have experienced a real-life scenario. Even though we deliberately asked if the scenario at hand appeared realistic and credible (control question), we suggest to validate the results by means of a field experiment, for instance, via a survey among real customers within an actual customer-company-relationship.

Second, focusing on the sampling of the study, the mostly younger and well-educated participants certainly may have a high affinity on digital communication channels. This may consequently limit the generalizability of the results. Although we controlled for this affinity by considering the channel competence and participants in all six scenarios are homogenous in terms of baseline demographic characteristics, we suggest a comprehensive study considering a diversified background of participants.

Third, relating to the application context, we investigated a digital service encounter in financial services industry with one specific reason (here: credit card application). Further research on encounters in other industries (e.g., consumer goods) and other scenarios (e.g., complaint management) may be advisable.

Fourth, we focus on a single interaction between service personnel and customer. Since customers may switch communication channels, it would be interesting to analyze effects on customer satisfaction across several interactions and channels.

Fifth, we do not differentiate the type of migration background (e.g. Chinese vs. Turkish migration background) among participants, which may limit the generalizability of the results, since customers from different demographics have different perceptions.

Finally, for a high customer satisfaction, our results suggest video communication instead of audio and text. However, the trade-off between offering higher media richness or social presence and potentially higher costs is subject to further research.

## **6.3 Conclusion**

We presented theoretical arguments and supporting empirical evidence for the positive effect of media richness and social presence on customer satisfaction in digital service encounters. The effect of cultural distance on customer satisfaction – which has been established in marketing research concerning offline service encounters – does not equally apply in digital service encounters.

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