PHYSICAL VS. DIGITAL INTERACTIONS: VALUE GENERATION WITHIN CUSTOMER-RETAILER INTERACTION

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Abstract The traditional retail sector is currently facing major challenges, particularly due to digitalisation and the associated changes in customer behaviour, increasing demands in the service world, new technologies and other factors. The COVID-19 pandemic has accelerated and intensified this process. From a retailer's point of view, it is essential to create value for the customer through digital interactions. In this article, a study based on the *Value in Interaction Model* investigates whether it is possible for physical retailers to make a digitally supported interaction as valuable as the direct contact in the store and what influence this has on the Perceived Relationship Quality. The results show that the difference in perceived value between the physical and digital retailer interaction is relatively small. This proves that when the interaction layers are actively designed with a focus on value, a digital interaction can be almost as valuable as the traditional in-store interaction.

1   Introduction

Not only since the COVID-19 pandemic the stationary retail sector has been facing major challenges. Digitalization (Hagberg et al., 2016) and the accompanying changes in customer behaviour (Spaid & Flint, 2014), new and innovative competitors with disruptive approaches and advantages, increasing demands in the service world (e.g. same day delivery), new technologies (e.g. emotion-based IS support (Meyer et al., 2021)) and sales channels - all this means a major change to stationary retail and the associated traditional mechanisms and approaches. The development shows that retailers must avoid a further loss of customer contact (HDE, 2019) at all costs. We suggest that the interactions with the customers and their design must be placed in the center of attention. To create meaningful and valuable interactions, Geiger et al. (2020) have proposed the *Value in Interaction Model* (consisting of three layers: *Relationship Layer*, *Matching Layer* and *Service Layer* (see Figure 1). Customers access the digital offers of companies via digital interfaces, they use digital mediation platforms or comparison offers, inform themselves in web shops or via apps. Ultimately, a more or less successful and thus, valuable digital interaction then decides which products or services the customer chooses. It is no longer sufficient for a retailer to have only competences to deliver its standard service offering. The interactions should be actively designed on the three layers to generate (positive) value for all participating actors. As described, it becomes apparent that the stationary retail sector has major problems in designing value-added IT-supported interactions. While larger companies usually have both the financial and human resources to drive such developments, smaller ones often lack directly implementable solutions. One such potentially promising and easy-to-deploy service is the use of a messenger channel for customer communication.

In the context of this article, a study based on the *Value in Interaction Model* examines whether it is possible for physical retailers to make a digitally supported interaction just as valuable as the direct contact in the store and what effect this has on the Perceived Relationship Quality (PRC). After briefly explaining the *Value in Interaction Model* in the second section, section 3 deals with the PCR. Section 4 focuses on the methodology of the study and data collection before deriving the hypotheses in Section 5. While the results of the survey are presented in section 6, we finally draw a conclusion and give an outlook in section 7.

2   Value in Interaction

In marketing, theories like Service Logic (SL) or Service Dominant Logic (S-D logic) have been developed, which show companies how they can successfully design services in a very strongly customer-centric view (e. g. Grönroos, 2006; Vargo & Lusch, 2004). These service-centric theories have changed the way of thinking about what happens in business. The focus lies on the value for the customer, which is always created by a service. It is then no longer the provider with its product that creates value, but the value arises from the fact that the customer makes use of the provider's competences – called Value in Use (Grönroos, 2006). This value is measured solely from the added value that the customer derives from it. The dedicated consideration of the Value in Use of a service has proven to be a starting point for successful market offers. It is therefore obvious to also measure digital interactions by the value they offer for the customer. Wikström (1996) already pointed out that value is created in dialogue between actors within interactions. Interactions refer to practices in which actors are integrated into each other's processes (Grönroos & Ravald, 2011). They always should serve to realise specific purposes. However, the human being as a social being achieves a value in the interaction itself during communication. As described by Geiger et al. (2020b), the *Value in Interaction* can be created through digital services in the interaction and is based on the providers special competences
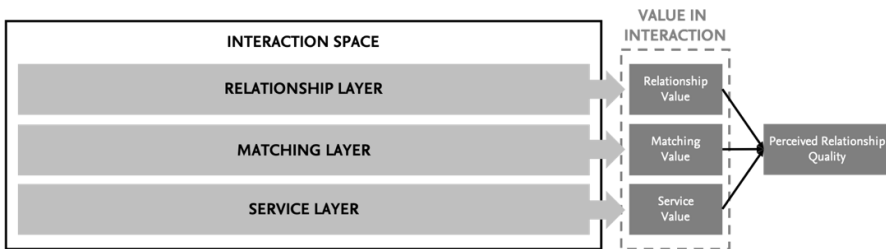

Figure 1: *Value in Interaction Model* and Perceived Relationship Quality.
Source: based on Geiger et al. (2020a)

The basis of any interaction is a connection between the actors in a shared *Interaction Space* (Grönroos, 2006), which can be provisioned by both actors. Such an *Interaction Space* can be the physical store of a retailer, but also a digital space, such as a website, an app or the usage of a messenger. Through interactions in this *Interaction Space*, the

actors have the opportunity to engage with the other actor or to influence their behaviour (Geiger et al., 2020a). However, this is only successful if the interaction is also seen as valuable by both actors (Fyrberg & Jüriado, 2009). From the provider's point of view, the goal is to open up *Interaction Spaces* with customers, to expand them if possible, or to be able to open them up again and again. The *Value in Interaction* arises within such an *Interaction Space*. It develops through and during the interaction, it unfolds its effect in the moment and thus influences the further processes of joint value creation (co-creation). In addition to the learning effects from successful interactions for follow-up interactions, value at the three layers also plays a long-term, direct role in the context of the actors' relationship (Geiger et al., 2021). However, the mere existence of an interaction does not lead to value. Rather, it depends on the quality of the interaction (Fyrberg & Jüriado, 2009). Thus, an interaction characterised by mediocre or even negative aspects (lack of quality) will have a negative impact on the PCR of the customer with the service or product (Geiger et al., 2021). Initial studies have shown that the composition of the *Value in Interaction* Model is basically suitable for significantly influencing the PRQ (Geiger et al., 2021). As a result, a large proportion of the PRQ can be explained by the *Value in Interaction*. This shows that the *Relationship Layer*, *Matching Layer* and *Service Layer* should be taken into account from a company's perspective when designing any interaction. If a company, and here in particular the bricks and mortar retail, manages to satisfy the needs of the customer on the individual layers in the interaction, this positively influences the PRQ. In addition to the actual competences in service provision, this requires further competences in order to be able to actively shape the individual layers of the *Value in Interaction*. Interactions that are adapted to the needs are thus relevant in order to build a high relationship quality between actors.

3 Perceived Relationship Quality

From a business perspective, an interaction with customers should always positively influence the relationship between the actors in order to contribute to shaping a long-term relationship. The Relationship Value described in the *Value in Interaction Model* consists, among other things, of the relationship-relevant advantages and disadvantages that the customer makes use of (Cronin et al., 1997; Dodds et al., 1991; Grewal et al., 1998). A relationship-relevant advantage can be, for example, higher esteem and a more confidential relationship, a disadvantage a resulting dependency. However, the advantages are not derived from the value, but primarily

from the PRQ (Hennig- Thurau & Klee, 1997). This thus depends closely on the expectations of both parties as well as their subjective evaluation of the satisfaction - and this concretely in every contact, every interaction between the actors. Thus, the value resulting from the *Relationship Layer* in the *Value in Interaction Model* is relatively more important in the initial stage of a relationship than at a later stage. The longer the relationship lasts, the more important the PRQ becomes. As already proven (Geiger et al., 2021), it can therefore be assumed that a successful interaction, which results in a positive *Value in Interaction*, also positively influences the PRQ and is thus a cornerstone for a long-term customer relationship.

Relationship quality consists of several components, on which research is largely unanimous. Based on the long-term accepted view of Hennig-Thurau & Klee (1997) (based on e.g. Crosby et al. (1990), Dorsch et al. (1998), Garbarino & Johnson (1999) and Smith (1998)) PRQ can be measured by (1) customer satisfaction, (2) the trust of the customers and (3) commitment to the relationship. The PRQ of the two parties involved has a significant impact on the duration and intensity of the underlying relationship (Hennig- Thurau & Klee, 1997). Accordingly, the PRQ is one of the most important determinants in the evaluation of a relationship in terms of permanence and intensity.

4 Research Methodology and Data Collection

This paper aims to find out whether a digital interaction between retailer and customer leads to a comparable value generation in the context of *Value in Interaction* and what effect this has on the PRQ. In the following section, the research methodology used, and the data collection are presented.

4.1 Operationalisation of the Model Scales

In order to obtain robust results, validated scales from existing research were used for data collection. The scales used in this paper for the components under investigation are well established and well founded in the literature. The scale of *Relationship Value* is captured by the "Relationship Value" (RV), which is represented by the four items from (Nguyen & Nguyen, 2011). The *Matching Value* is measured via the "Decision Convenience" (DC), "Access Convenience" (AC) and the "Benefit Convenience" (BC) (Colwell et al., 2008). Based on the work of Ruiz et al. (2008),

the *Service Value* consists of the "Service Value" (SV), the "Service Quality" (SQ) and the "Perceived Sacrifice" (PS). PRQ, as already mentioned, consists of the three scales "Relationship Satisfaction" (RS), "Trust" (TR) and "Commitment to the Relationship" (CR) (Adjei et al., 2010; Morgan & Hunt, 1994; Wulf et al., 2001). All scales were translated from English into German using DeepL[1] and adapted to the scenarios. In addition, items with inappropriate content were excluded due to the subject of the study. All scales were measured on a 5-point Likert scale (5=strongly agree). The survey also asked about gender, age and if they can empathise well with the described situation. Internal consistency for each of the scales was examined using Cronbach's alpha. By eliminating items, a substantial increase in alpha could be achieved (see section 6).

4.2 Data Collection and Sample

The data was collected via an online survey conducted in German and distributed via various mailing lists of a German university and via platforms like SurveyCircle and Pollpool[2]. Before the survey was made available to the public at the end of December 2020, a pretest was held with five participants. The actual survey took three weeks. Participation was voluntary in all cases.

Two different scenarios for (a) interaction in physical retail (scenario 1) and (b) digital interaction of physical retail via messenger (scenario 2) were described in detail. In order to make it easier for the test persons to empathies, the textual description of the situation was underpinned with pictures. The use cases were about a gift search for a third person one day before Christmas. In scenario 1 (S1), the consultation took place in a bookstore, in scenario 2 (S2) the bookstore interacted via WhatsApp Messenger. To ensure comparability, the interaction via messenger was identical to the interaction in physical retail. Where an exact transfer of the physical interaction into the digital interaction was not possible, adequate services were used (e. g. direct takeaway of the gift in scenario 1 vs. same-day delivery in scenario 2). The allocation to the two scenarios was done randomly with a probability of 50 % in each case. The data was analysed using SPSS Statistics 25.

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[1] DeepL: www.deepl.com
[2] https://www.surveycircle.com/de/ and https://www.poll-pool.com/: Study dissemination platform for generating participants

M. Geiger, F. Jago &S. Robra-Bissantz:
Physical vs. Digital Interactions: Value Generation Within Customer-Retailer Interaction

159

150 participants completed the entire questionnaire. Five data sets had to be eliminated due to uniform response behaviour. In the end 145 valid responses were available. The demographic information on the sample and other characteristics of the subjects are listed in Table 1.

Table 1: Demographic Information

Characteristic	Distribution	
Sample Size	145 (scenario 1: 74, scenario 2: 71)	
Age	Range:	19 – 59 years
	Mean:	28,4
	Median:	26,0
Sex	male:	53 (scenario 1: 28, scenario 2: 25)
	female:	92 (scenario 1: 46, scenario 2: 46)
	other:	0
Empathise well with the situation	scenario 1: 94,6% (70 participants)	
	scenario 2: 78,9% (56 participants)	

5   Derivation of hypotheses

The direct social interaction in 1-to-1 counselling in physical retailing has advantages in shaping the relationship. Creating an equivalent experience in the digital space seems more difficult due to the lack of human interaction and related physically visible expressions (e. g. emotions via voice pitch or body language) (Otto & Chung, 2000). It can therefore be assumed that direct interaction in physical retail has an advantage over digital interaction in shaping the interaction on the *Relationship Layer* and thus in achieving value.

H1: Physical retail interaction can achieve higher *Relationship Value* than a digital interaction performed by physical retail.

Information is needed to match the interaction components with the needs of the actor to design the relationship and service layer. This information about the customer is either already available in physical retail or it is the responsibility of the sales staff to find it out. In the context of this study, a stand-alone interaction was investigated. Thus, there was no existing information about the customer and the concrete needs. Due to the personal interactions and direct responses, it must be

assumed that interaction in physical retail has an advantage over digital interaction in shaping the interaction on the *Matching Layer* and thus in achieving value.

H₂: Physical retail interaction can achieve higher *Matching Value* than a digital interaction performed by physical retail.

If the goal of a customer is to find a gift, as in the context of the study conducted, physical retail can also express its advantages. Inspiration is a core function in retailing (Böttger, 2015). With creating a stimulating shopping environment and due to the service of physical examination and direct availability (Otto & Chung, 2000) physical retailer can inspire their customers in their stores. Therefore, it can be assumed that direct interaction in physical retail has an advantage over digital interaction in shaping a valuable *Service Layer*.

H₃: Physical retail interaction can achieve higher *Service Value* than a digital interaction performed by physical retail.

As already examined by Geiger et al. (2021) in a recent study, the three layers of *Value in Interaction* have an influence on the PRQ. Following the explanations of the preceding hypotheses, it can therefore also be assumed that direct interaction in physical retail has an advantage over digital interaction when it comes to PRQ.

H₄: Physical retail interaction can achieve a higher PRQ than a digital interaction performed by physical retail.

6 Results

For the following comparison of the two scenarios on the different layers of *Value in Interaction* and PRQ, different statistical methods were used. To ensure valid results, the internal consistency of the scales was checked using Cronbach's α. Thus, no item of the *Relationship Value* scale, two of the eight items in the *Matching Value* (MV) scale for S1, two of the seven items of the *Service Value* (SV) scale for S1 and S2 and three (S1) respectively one (S2) of the 16 items of the PRQ scale had to be eliminated. The data was tested for normal distribution using the Shapiro-Wilk Test. The results indicate a non-normal distribution for all scales ($p<0.01$). Since ordinal scaled data was analysed, the Mann-Whitney-U-Test (U) was used to find out whether the central tendencies of the independent samples differ. Since the sample

is larger than 30, we report the asymptotic 2-sided significance. The results are shown in Table 2.

Table 2: Statistical results

		α	Mean Rank	*U*	*Z*	Sig.[3]	Mdn	*r*
RV	S1	.797	77.54	2291.000	-1.337	.181	-	-
	S2	.824	68.27				-	
MV	S1	.876	83.89	1821.500	-3.195	.001***	4.67	.265
	S2	.853	61.65				4.13	
SV	S1	.894	83.19	1873.000	-2.997	.003***	4.50	.249
	S2	.864	62.38				4.17	
PRQ	S1	.900	83.98	1814.500	-3.215	.001***	3.85	.267
	S2	.903	61.56				3.53	

Significance level (two-tailed): *** < 1 %

Relationship Value: For *Relationship Value* there was no statistically significant difference in S1 and S2, U = 2291.00, Z = -1.337, p = .181. *H₁ must be rejected for this reason.*

Matching Value: A comparison of the two mean ranks between S1 (83.89) and S2 (62.38) shows that the two groups might have a different central tendency. The *Matching Value* is higher with the physical interaction; exact Mann-Whitney-U-Test: U = 1821.500, p = .001. *H₂ can thus be confirmed.*

Service Value: Again, a comparison of the two mean ranks between S1 (82.19) and S2 (62.38) shows that the two groups might have a different central tendency. The *Service Value* is higher with the physical interaction; exact Mann-Whitney-U-Test: U = 1873.000, p = .003. *H₃ can thus be confirmed.*

Perceived Relationship Quality: Finally, when comparing the two mean ranks between S1 (83.98) and S2 (61.56), it can be reported that the two groups might have a different central tendency as well. The PCR is higher with the physical interaction; exact Mann-Whitney-U-Test: U = 1814.5000, p = .001. *H₄ can therefore also be confirmed.*

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[3] Asymptotic 2-sided significance

7   Conclusion and Outlook

Due to the high values, the results basically show that the use cases were suitable to represent a valuable interaction in retail. In the end, three of the four hypotheses were confirmed. While no statement can be made about the value creation on the *Relationship Layer*, the physical interaction manages to generate more value on the *Matching Layer* and the *Service Layer*. As was to be expected, this also leads to a higher PRQ. The biggest difference was .45 on the *Matching Layer*. At this layer, it thus seems to be a particular challenge to find out the exact need of the customer in the context of a digital interaction. This is also understandable, as the use case in question here involved an initial contact between the customer and the retailer. It can be assumed that on the basis of several successive interactions, a better knowledge base can be created by data storing and interpreting the different interactions. Surprisingly, however, the difference in perceived value (*Matching Value* and *Service Value*) between the physical and the digital retailer interaction is rather small. This shows that when the layers are actively designed with a focus on value, a digital interaction can be almost as valuable as the traditional in-store interaction. Previous studies have shown that the three layers of *Value in Interaction* are capable of significantly influencing the PRQ (Geiger et al., 2021). PRQ for digital retail interaction is .32 lower than physical interaction. So, when it comes to relationship quality, the additional benefit between the different interaction channels also seems to be low. In order to be able to actively shape the individual layers of the *Value in Interaction*, further competences are required in addition to the actual competences in standard service delivery (Geiger et al., 2020b). In addition, many former customers are no longer (physical) accessible to retailers due to declining customer frequency (HDE, 2019), with the COVID-19 pandemic accelerating this process by five years (IBM, 2021). Customer behaviour itself is changing (Spaid & Flint, 2014) and especially the younger prefer to shop online instead (Sabanoglu, 2017). Accordingly, it is all the more important for retailers to place digital interactions and their valuable design at the heart of their business. With regard to the limitations, it must be taken into account that the scales used were created by different authors and thus may have been perceived differently by the participants. The extent to which it is possible to achieve a higher value with digital interactions or whether digitally supported interactions (digital plus direct interaction) are the best way to generate value should be further researched. Even though there are already initial studies on the impact of the three layers on PRQ (Geiger et al., 2021), a precise analysis of this relationship

M. Geiger, F. Jago &S. Robra-Bissantz:
Physical vs. Digital Interactions: Value Generation Within Customer-Retailer Interaction

163

should be carried out in the context of the use cases described here. In further research, the concrete influencing components of an interaction are also to be identified in order to develop concrete guidelines and design patterns for the active design of interactions on this basis. In addition, the technologies currently discussed in IS and their applications such as emotion recognition (Meyer et al., 2019), personality mining (Ahmad et al., 2021), AI or chatbots are to be examined in relation to the *Value in Interaction Model.* The aim is to find out how these technologies have to be integrated into the interactions between retailers and customers in order to generate value and what contribution they make to the PRQ in comparison to each other.

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M. Geiger, F. Jago &S. Robra-Bissantz:
Physical vs. Digital Interactions: Value Generation Within Customer-Retailer Interaction

165

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