

PERCEPTIONS OF PERSONALIZATION IN COMPANY-CONSUMER INTERACTIONS ON SOCIAL NETWORK: EXPERIMENT CONDUCTED IN THE CZECH REPUBLIC

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Abstract: Social media has revolutionized the way in which organizations communicate with their customers and stakeholders. Therefore, understanding the characteristics that influence the interactivity and the relationship between an organization and its page visitors is essential for the capability of an organization ability to respond to the current and potential customers on social networking sites in an appropriate manner. The research investigates how companies using brand communities on Facebook influence consumers' intention to purchase through online interactivity, responsiveness, and personalization. In an online experiment, participants viewed selected records of communication with customers from companies on Facebook pages that differed as to whether and how specifically the companies responded to their consumers. The results were obtained using mediation analyses. These indicate that perceptions of company responsiveness and personalization, based on existing consumer interactions on a Facebook page, influence how participants rated the company, the quality of their own potential company interactions, and the likelihood of them purchasing products from the company in future. The findings of this research also support the assertion that social media has an impact on brand communities as a platform on which consumers interact. Additionally, eye tracking was used to collect data about customers' activities that assist in understanding how people acquire information from web pages. The research provides a better understanding of which distinct components of a message meaningfully influence perceptions of interactivity. The findings show that marketers should focus on customer complaints as this component of the messages on social media influences the viewer's visual search. To test other cultural contexts and for further validation of identified relationships, future research could be conducted globally.

Keywords: Online interactivity, perceived interactivity, personalization, Facebook, eye tracking.

JEL Classification: M31, M39.

APA Style Citation: Eger, L., Komárková, L., & Zákružná, V. (2021). Perceptions of Personalization in Company-consumer Interactions on Social Network: Experiment Conducted in the Czech Republic. *E&M Economics and Management*, 24(2), 153–170. <https://doi.org/10.15240/tul/001/2021-2-010>

Introduction

Social media (SM) has become one of the largest environments of human interaction. Growth in social network use is evident in

developed countries, and to an even greater extent in developing countries (Internet World Stats, 2020). In 2019, 53% of EU enterprises used at least one type of SM and 86% of these

used SM to build their image and market their products. Additionally, more than 54% of the people (16–74 years old) living in the EU used the Internet for participating in social networks (Eurostat, 2020a, b). DESI (2020) found that over 65% of all EU citizens use at least one form of SM, the most popular being Facebook and Instagram, especially among young people.

Consequently, as the use of SM becomes increasingly common, companies seek to reach and interact with current and potential customers through SM platforms (Shanahan et al., 2019; Wang & Kim, 2017). An increasing number of organizations are investing time and money into designing strategies and managing brand communities on SM to attract and interact with consumers (De Vierman et al., 2017; Coelho et al., 2018).

SM offers vast marketing opportunities (Alalwan et al., 2017; Tuten & Solomon, 2017). The fundamental nature of SM as a platform for consumers to interact with and influence one another has greater direct impact on brand communities (Wang & Kim, 2017). Thus, brands are able to engage and communicate with Facebook users through paid advertising or organic (free) advertising, such as the content posted on their brand pages which can be liked, commented on, or shared (Wiese et al., 2020).

In recent years, a large number of experts have conducted research into this area as it relates to the latest challenges faced by brands on SM (e.g. Alalwan et al., 2017; Coelho et al., 2018; Shanahan et al., 2019). It is imperative that companies understand the reasons why SM users respond positively toward brands and their marketing messages. An important question is how the interactions within the brand community on SM translate into a relationship with the brand. The aim of this study is to examine how perceived interactivity influences consumer attitudes and purchase decisions (cf. Chu & Yuan, 2013), and which components of a message on SM influence their visual search.

Thus, it is of theoretical and practical importance to understand which factors influence perceptions of interactivity. The experiment conducted in the United States by Vendemia (2017) demonstrated that the perception of personalizing current consumer responses indirectly influenced viewers' assessment of the quality of future interaction, attitude toward the company, and willingness to make a purchase. However, whether

these results are applicable to customers from different cultural identities has not been empirically verified. Thus, Vendemia (2017) stipulates that additional validation of the identified relationships is required. Notably, Sheth (2020) demands that empirical research should focus on the differences in cultural consumer behavior in this environment following the COVID-19 pandemic. To fill this gap, we performed a similar experiment in a Central European country during the pandemic.

Additionally, Vendemia (2017) and Shanahan et al. (2019) appeal for further research to gain a better understanding of which distinct components of a message meaningfully impact perceptions of interactivity. Unexpectedly, a limited number of previous studies comprise empirical analyses of users' visual searches. For the purpose of gaining insight into specific facets of online interactivity, embedded mixed methods design (Creswell, 2014) using eye tracking was conducted with the aim to obtain more precise information about the user's point of view.

1. Literature Review

1.1 Social Media and Brand Communities

SM has revolutionized the way in which organizations communicate with their customers and stakeholders. Social network sites such as Facebook, Twitter, or Instagram represent one of the most common forms of socio-cultural interaction, particularly for young people. Frunzaru and Boțan (2015) and Phu and Gow (2019) state that people's social lives are increasingly influenced and shaped by SM networks such as Facebook. A growing number of organizations establish and maintain their interactive online presence via social networking sites and consistently seek to engage with potential and current customers (Alalwan et al., 2017; De Vierman et al., 2017; Novotná, 2018). Therefore, understanding the characteristics that influence the interactivity and the relationship between an organization and its page visitors is essential for the capability of an organization ability to respond to the current and potential customers on social networking sites in an appropriate manner.

SM (including social network sites) outlets are numerous and varied. Mangold and Faulds (2009) argue that SM is a hybrid element of the promotional mix because, in a traditional sense,

it enables companies to communicate with their customers, while, in a nontraditional sense, it enables customers to communicate directly with one another.

Some studies have found a significant positive relationship between perceived interactivity and outcome variables such as attitude and behavior (e.g. Bowden, 2009; Cvijikj & Michahelles, 2013; Hudson et al., 2016). In contrast, Mangold and Faulds (2009) warn that the content, timing, and frequency of SM-based conversations between consumers are outside managers' direct control.

Currently, the popularity of social networking sites provides brands with new platforms, such as brand pages on Facebook, or accounts on Instagram or Twitter (De Vierman et al., 2017). For example, using Facebook, brands acquire the capacity to support activities such as providing customer service, product information, special offers, and different types of entertainment (Simon & Tossan, 2018). Different message features generate different behaviors (cf. Strauss & Frost, 2012; Tuten & Solomon, 2017). The core of all communication on Facebook is a single post. It represents the unit of every Facebook communication. From the customers' point of view, likes represent a considerably basic form of engagement. Rational and interactive features engender comments whereby people are enabled to share their thoughts, ideas, and opinions, or to show their interest in the post's topic (Alsufyan & Aloud, 2017; Kim & Yang, 2017; Wang & Kim, 2017).

1.2 Online Interactivity

Online interactivity is a widely studied concept with inconsistencies in conceptualization and operationalization. The term interactivity is regarded as critical to successful website marketing (Chu & Yuan, 2013; S et al., 2020). Steuer (1992, p. 84) defines interactivity as "the extent to which users can participate in modifying the form and content of a mediated environment in real-time". The level of interactivity is the key feature of SM media platforms, which not only changes the way in which messages are communicated, but also how they influence consumers' opinions and attitudes (S et al., 2020).

Wu (2005) states that researchers from different disciplines define interactivity differently. Actual interactivity merely enables

possible interaction, but the degree of use depends on the recipient. The interactivity of websites is perceived as a psychological experience by site visitors during the interaction process (Wu, 2005). Vendemia (2017) states that online interactivity research has primarily focused on actual interactivity, where people either use a particular technological feature available on a selected platform, or actively engage in interactions. Websites that allow users to search for and access information on demand, as well as control the content themselves, might be perceived as an online communications tool that provides consumers with greater interactivity (cf. Chu & Yuan, 2013).

Social networking sites allow people to view and evaluate publicly available conversations over time without having to interact: "People do not need to actively engage with a company to gain information and form impressions" (Vendemia, 2017, p. 100). Thus, this study, from inception, expands on previous research by exploring how the basic act of viewing the interactions of others is pivotal in shaping attitudes toward the source and behavioral intention. This complements the research of Vendemia (2017), albeit in a different cultural context. Importantly, social networking sites allow for the same content to persist over time, influencing users in this way, for example through their online brand communities (De Vierman et al., 2017; Zheng et al., 2015). A number of users are passive and rarely communicate on these sites, but they browse the selected pages (lurking). The different messaging features might influence how users perceive the type of online interactivity, as well as their attitudes and behavior.

1.3 Responsiveness

As mentioned, the study complements the research by Vendemia (2017). Thus, responsiveness is defined as viewers' perceptions of the probability of receiving a response (from a company) in a timely fashion (Wu, 2000). A specific definition with an emphasis on complaints was posited by Kelleher and Miller (2006, p. 404), who described responsiveness/customer service as "an organization's willingness to respond promptly to customer inquiries and complaints". For the most, consumers expect timely responses to their requests and questions (Lee, 2005; Vendemia, 2017).

A consumer's perceived ability to interact with an organization might be greatly formed by existing evidence that indicates whether or not organizations are responsive to questions, concerns, and complaints posted by other users of social networking sites. If users of SM observe others receiving responses from an organization in a timely fashion, they will expect not only the same, but are also likely to view this as having received an essential response too (cf. Vendemia, 2017). In this context, Vendemia (2017) stated that several e-commerce studies support the concept that responsiveness results in increased positive attitudes toward and greater intentions to purchase from the company. Thus, the following three hypotheses are proposed:

H1a: The greater the perception of viewers that companies are responsive to existing consumer messages on a Facebook page, the more they are convinced that companies will be responsive to their own messages.

H1b: The greater the perception of viewers that a company is responsive to their own messages on Facebook page, the more favorably they evaluate the company.

H1c: The greater the perception of viewers that a company is responsive to their own messages on Facebook page, the more willing they are to make purchases from the company.

In summary, the aim of this research is to verify the validity of the responsiveness mediation model (see Fig. 1) in a Central European environment such as the Czech Republic. Originally, the model was verified by Vendemia (2017) using American data.

1.4 Personalization

The central precept of personalization is to deliver individualized information to message

recipients based on their unique preferences. Personalization can be defined as delivering personalized advertisements to individuals based on their exclusive preferences (Li, 2016). A large number of organizations employ this for effective advertising and relationship management in the SM.

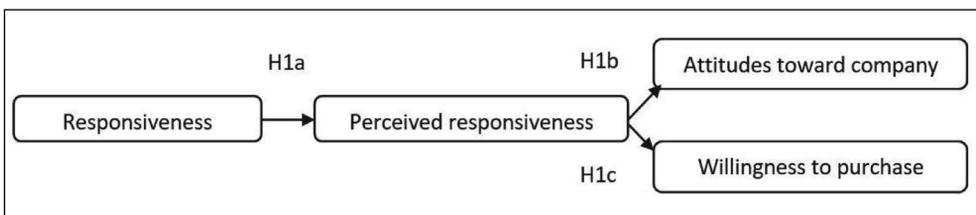
A review study (Noar et al., 2009) indicated that when personalized and non-personalized messages are compared, the latter are more efficacious on the whole, because they are more memorable and more likable, for example. The conclusion by Li (2016, p. 25) is important for the purposes of this study, as "a message will show superior effects when it is perceived to be personalized by a message recipient, regardless of whether it is actually personalized or not."

Personalization allows organizations to customize their interactions with users to highlight a specific product that the user has researched or brand features that they are likely to find attractive (Shanahan et al., 2019). More personalized responses increase the perception of interactivity for users and viewers. If users of SM observe others receiving personalized responses from an organization, they will anticipate favorable discussions in future (Vendemia, 2017) and therefore, those communications can be perceived as personalized (Li, 2016). Thus, the following four hypotheses are proposed:

H2a: The greater the perception that viewers receive personalized responses to existing consumer messages on companies' Facebook pages, the more they are convinced those companies will provide personalized responses to their own messages.

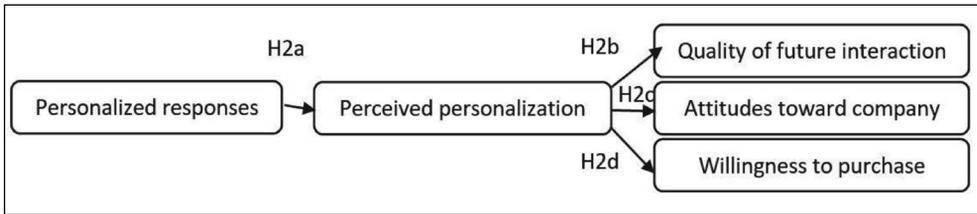
H2b: The greater the perception that viewers receive personalized responses to their

Fig. 1: Responsiveness mediation model



Source: Vendemia (2017)

Fig. 2: Personalized responses mediation model



Source: Vendemia (2017)

own messages on companies' Facebook page, the more favorably they evaluate the quality of future interactions.

H2c: The greater the perception that viewers receive personalized responses to their own messages on a company's Facebook page, the more favorably they evaluate the company.

H2d: The greater the perception that receive personalized responses to their own messages on a company's Facebook page, the more willing they are to make purchases from the company.

The research aims to verify the personalized responses mediation model (Vendemia, 2017), as shown in Fig. 2, in the Czech environment.

However, personalization does not have a positive effect in a number of instances. For organizations, electronic word-of-mouth communication is a double-edged sword. Findings presented by Einwiller and Steinlen (2015) showed that companies were not comprehensively embracing the opportunities afforded by SM to demonstrate their willingness to interact with and assist their stakeholders. When users of SM are dissatisfied with an organization, its product, or service, they may be motivated to express their dissatisfaction online.

2. Methodology

2.1 Research Design Overview

At the outset, in reference to Vendemia (2017), a one-factor between-subjects experiment was conducted to test the hypotheses. Participants were randomly assigned to one of three conditions that differentiated between the manner in which selected companies responded to several consumer posts on their

Facebook pages. In the no-response condition, the organization did not provide any responses to consumer posts. In the low personalization response condition, the organization provided timely responses, but they were not customized to address the specific needs of any particular consumer post. In the high-personalization response condition, the organization provided personalized responses that specifically addressed each consumer post. The research design used conditions identical to those in the Vendemia (2017) study, but for experimental purposes, we used posts by well-known companies from the sports industry, namely Adidas, Puma, and Under Armour. These brands were chosen on the strength of their high public profiles and customers predominantly considering them as gender neutral. Following the viewing the stimulus material, participants completed an online questionnaire.

2.2 Embedded Eye Tracking Survey

Additionally, eye tracking was used to collect data about customer activities that can assist in understanding how people acquire information from web pages. Embedded mixed methods design involves as well either the convergent use of data. In this case, obtained data from quasi-experiment is embedded within a smaller eye tracking survey that plays supporting role in the overall design (cf. Creswell, 2014). For the conducted experiment an eye-tracking device and software Mangold Vision, Eye Tracking System (Mangold International, 2020) were used.

Eye tracking allows researchers to methodically follow what is being looked at and when (Nisiforou & Laghos, 2013). Embedded survey used eye tracking technology to record

the participants' eye gaze behaviors and analyze the differences in the distribution of visual attentions while browsing the experimental Facebook pages (cf. Wanag & Hung, 2019).

Objectivity is regarded as the most significant advantage of using an eye-tracking device (Mičík & Kunešová, 2021; Pernice & Nielsen, 2009; Velásquez, 2011). The following research question was formulated for this embedded part of the research:

RQ: Which distinct components of a message and related comments influence viewer behavior?

2.3 Sample

The sample for the experiment consisted of 147 final-year business economics students (93 females and 54 males) at the University of West Bohemia in the Czech Republic. Participants were therefore from a homogenous age group, ranging from 21 to 25 years that is important in quasi-experiment for internal validity (Creswell, 2014). In addition, the sample in the original American study (Vendemia, 2017) consisted of 126 students from the Midwestern University. All the participants in the Czech version of experiment used a number of forms of SM, and all indicated that they were Facebook users. Tab. 1 shows the characteristics of their activities on Facebook. The subsample for eye tracking comprised 27 students (19 females and 7 males), and this part of the research was conducted in March 2020 before the onset of the COVID-19 pandemic in the Czech Republic. The second part of this research (120 participants where eye tracking was excluded) was conducted during the COVID-19 pandemic in April 2020.

2.4 Experiment Stimuli

Facebook, the most popular SM site worldwide and especially for young people in the Czech

Republic (Eurostat, 2020b), was used as the platform for creation of consumer posts and company responses. The experimental Facebook page displayed selected real posts from three well-known sports brand companies as a consequence of their extensive range of goods and high relevance to a wide audience. The consumer posts and company responses were manipulated to reflect varying degrees of responsiveness and personalization. Each experimental Facebook page included two compliments, two inquiries, and two complaints to reflect different scenarios on corporate SM pages. See Fig. 3 for stimuli Facebook profile – no response, Fig. 4 = low personalization response, Fig. 5 = high personalization response.

■ Responsiveness

Responsiveness (response, no response) was manipulated by the presence or absence of responses from a company to consumers' compliments, inquiries, and complaints (cf. Vendemia, 2017). See Fig. 3 for the no response condition (focus map).

■ Personalization

Personalization (high vs. low) was manipulated through the specific types of responses to consumers, whereby this study adopts the following definition by Vendemia (2017, p. 104): "Company responses high in personalization were targeted toward the specific compliments, inquires, and complaints of the consumer." This signifies that the company responses with low personalization provided standard responses to all consumer posts. For example, a Facebook response in the low personalization response condition read: "Please contact us at", "Have you visited <http://...>". See Fig. 4, heat map for low personalization response condition and Fig. 5 heat map for high personalization response condition.

Tab. 1: Respondents' characteristics (M – Mean, SD – Standard deviation)

Characteristic	M	SD
Age in years	23.3	1.0
Number of years on Facebook (FB)	9.6	1.8
Time spent on FB on weekdays in minutes per day	68.7	71.6
Time spent on FB on weekends/holidays in minutes per day	66.2	62.8

Source: own

2.5 Procedure

Participants were recruited at the university. For experimental purposes, three web pages with different stimuli were prepared. A specific web page was randomly assigned to the participants of the experiment. For *the first group of participants* ($n = 27$; 9 for each web page), eye tracking was used to collect data about students' activity. An eye-tracking device was used as a visual gaze analysis tool to identify the attention paid by respondents to web objects. In the second group, participants ($n = 120$) after viewing the recruitment letter were directed to the online information, and an experimental page containing selected posts from Facebook. In total, for both groups, web page with no response condition was shown to 50 respondents (31 females, 19 males), web page with low personalization to 49 respondents (30 females, 19 males), and web page with high personalization to 48 respondents (32 females, 16 males) before completing the questionnaire.

2.6 Measures

The quantities of primary interest measured in this study were perceived interactivity variables, represented by perceived responsiveness and perceived personalization. Additionally, the quality of future interaction, attitudes toward the company, and willingness to purchase were measured as outcome variables (in reference to the research by Vendemia, 2017). A number of different measures were used to assess Facebook use, Facebook familiarity, and demographic information (see Tab. 1).

For a better understanding of which of the distinct components of a post meaningfully impact perceptions of interactivity, the heat maps were analyzed using eye tracking. Data obtained using an eye tracker eliminate the respondents' subjectivity (Pernice & Nielsen, 2009). Its use allows the study and analysis of the way in which a person visually explores a particular scene that is presented on selected web pages (Duchowski, 2017). The eye tracking survey was used to understand which distinct components of a post and belonging comments to select post-meaningfully impact perceptions of interactivity. Eye tracking analysis is based on the important assumption that there is a relationship between fixations, our gaze, and our thoughts.

■ Perceived Responsiveness

Subsequent to viewing the experimental stimulus web page, participants were requested to rate their impressions of the extent of responsiveness on an experimental Facebook page on a seven-point scale (1 = strongly disagree; 7 = strongly agree) using four previously validated items (Chu & Yuan, 2013; Vendemia, 2017). The language mutation of the items was obtained through double translation. Sample items include, "Sport companies respond to consumers" and "Sport companies have the ability to respond to my questions quickly." Reliability was assessed using Cronbach's alpha ($\alpha = 0.95$).

■ Perceived Personalization

Additionally, participants were requested to rate their impressions of the extent of personalization on an experimental Facebook page with selected posts of mentioned sports companies on a seven-point scale (1 = strongly disagree; 7 = strongly agree) using five previously validated items (Chu & Yuan, 2013; Vendemia, 2017). Sample items include, "Sport companies provide personalized responses to consumers" and "Sport companies could be sensitive to my needs for product information" ($\alpha = 0.94$).

■ Quality of Future Interaction

Participants were asked to rate their impressions of the quality of future interaction with selected sports companies using an adapted message quality and information value scale (Munch & Swasy, 1988; Vendemia, 2017). An eight-item, seven-point semantic differential scale employed a number of different adjectives related to quality ($\alpha = 0.96$).

■ Attitudes Toward Company

Subsequent to viewing the experimental stimulus web page, participants were requested to rate their impressions of the company when communicated in the manner presented to them. A 12-item, seven-point semantic differential scale (Vendemia, 2017) employed bipolar adjectives to indicate the strength and direction of attitudes ($\alpha = 0.97$).

■ Willingness to Purchase

Participants were asked to rate their agreement with several statements about their willingness to make a purchase following their exposure

to the selected Facebook posts using 4 items on a seven-point scale (1 = strongly disagree; 7 = strongly agree) adapted willingness to buy scale (Dodds et al., 1991; Vendemia, 2017). Sample items include, “It is very likely that I would make a purchase from these companies in the future” and “I would feel comfortable purchasing from these companies in the future” ($\alpha = 0.93$).

▪ **Distinct Components of the Published Posts**

Three different web pages (Fig. 3, 4, and 5 document experimental web pages) were prepared to conduct the experiment. The experimental web pages lacked a navigation menu. A Mangold Vision eye tracking device and software was used as a visual gaze analysis tools to identify the attention paid by users to web objects. The objective was to gain information about the users’ fixation impact through a gaze plot (a map that shows gaze fixations on a web page) and heat map (graphical representation of data using colors to indicate the level of activity), resulting in the generation of visual patterns (Quimbita et al., 2020). Heat maps and gaze plots are tools for data visualizations from eye-tracking surveys that can unambiguously and comprehensively convey significant findings related to visual behavior (Velásquez, 2011).

2.7 Data Analysis Methods

The hypotheses were evaluated using appropriate statistical methods. The analysis plan for this research followed two steps

proposed by Vendemia (2017). First, analyses of variance (ANOVAs) were conducted to examine whether features of the message affected perceptions of responsiveness and personalization as expected (*H1a, H2a*). Second, mediation analyses based on a regression-based approach (see, e.g., Hayes, 2013) were conducted to examine whether the experimental factors affected the outcome measures through the proposed mediating variables (see mediation models in Fig. 1 and Fig. 2).

The obtained data from eye-tracking of personalized or non-personalized posts were documented using heat maps that visually represent the degree of respondent’s visual attention and provide a more intuitive understanding of fixation results (cf. Luan et al., 2016; Pfiffelmann et al., 2020). The heat map analysis was conducted to qualitatively show respondents’ reaction to different types of communication with customers on SM sites, and thus answer the research question.

3. Results

Tab. 2 presents summary statistics for five key variables, and shows Pearson’s correlations between them. Correlation coefficients are relatively high from 0.72 to 0.89, which are similar to Vendemia’s (2017) figures, namely from 0.69 to 0.89.

The hypotheses examine how displayed communication between a company and its consumers can influence the way in which viewers are convinced to interact with a company in the future, which, in turn,

Tab. 2: Correlation matrix and basic descriptive statistics

Variable	1	2	3	4	5
1. Perceived responsiveness					
2. Perceived personalization	0.89				
3. Quality of future interaction	0.86	0.83			
4. Attitudes toward company	0.82	0.78	0.86		
5. Willingness to purchase	0.75	0.73	0.72	0.79	
M	4.19	4.11	4.38	4.76	4.41
SD	1.91	1.68	1.50	1.40	1.55

Source: own

Note: For all correlations, $p < 0.01$.

affects how viewers regard the source of the information and how they intend to behave in the future.

3.1 Responsiveness

The first set of hypotheses examines the effect of the company being more or less likely to respond to consumer posts. Hypothesis *H1a* predicts that the greater the perception of viewers that the company is responsive to existing consumer messages, the more they are convinced that the company will be responsive to their own messages. In reference to Vendemia (2017), a one-way ANOVA was run to test the effect of the responsiveness factor. The ANOVA results demonstrate a significant difference in perceptions of company responsiveness on the Facebook page ($F(1; 145) = 222.0$; $p < 0.001$; effect size $\eta^2 = 0.60$; see also Model 1a results in Tab. 3). Participants were convinced that they could receive a response from the company ($M = 5.25$; $SD = 1.17$) when its communication on SM responded to existing consumer posts, as compared to those instances in which it did not respond ($M = 2.13$; $SD = 1.26$). Thus, *H1a* is supported not only by Vendemia (2017), but also by our data.

Mediation analyses were conducted to examine how the effect of existing company-consumer interactions on participants' own perceived ability to receive a response from the company affected how they evaluated the company (*H1b*) and their willingness to make a purchase from the company (*H1c*). For each outcome, two linear models were constructed: 1) model of dependence of the mediator variable on responsiveness; and 2) model of dependence of outcome on responsiveness and the mediator. Specifically, these results are shown in Model 1a and Model 1b for attitudes toward the company, or Model 1a and Model 1c for willingness to purchase, respectively (in Tab. 3). The effect of the perceived responsiveness on the variable outcomes in Model 1b and Model 1c is statistically significant, and a positive sign in the estimates demonstrates its expected positive effect (*H1b*, *H1c*).

The R package mediation (Tingley et al., 2014) was then used to obtain estimates of indirect effects and their corresponding 95% bias-corrected and accelerated bootstrap confidence intervals (95% BCa CI), based on 10,000 resamples. The results demonstrate

Tab. 3: Regression model results for perceived responsiveness (as a possible mediator), attitudes toward company, and willingness to purchase

Model 1a – Perceived responsiveness	Estimate	SE	P-value	95% CI
Responsiveness	3.12	0.21	<0.001	(1.79; 2.47)
(Intercept)	2.13	0.17	<0.001	(2.71; 3.53)
Model characteristics: $R^2 = 0.60$; $F(1; 145) = 222.0$; $p < 0.001$				
Model 1b – Attitudes toward company	Estimate	SE	P-value	95% CI
Responsiveness	0.56	0.22	0.012	(0.12; 0.99)
Perceived responsiveness	0.49	0.05	<0.001	(0.38; 0.60)
(Intercept)	2.33	0.16	<0.001	(2.01; 2.65)
Model characteristics: $R^2 = 0.68$; $F(2; 144) = 155.1$; $p < 0.001$				
Model 1c – Willingness to purchase	Estimate	SE	P-value	95% CI
Responsiveness	0.35	0.28	0.226	(-0.22; 0.91)
Perceived responsiveness	0.54	0.07	<0.001	(0.40; 0.68)
(Intercept)	1.90	0.21	<0.001	(1.49; 2.31)
Model characteristics: $R^2 = 0.57$; $F(2; 144) = 95.4$; $p < 0.001$				

Source: own

Note: Responsiveness was entered into the models as 0–1 quantity (0 – no response, 1 – with some response).

Tab. 4: Direct, indirect and total effects of responsiveness on attitudes toward company and willingness to purchase

Mediation Model 1b – Attitudes toward company	Estimate	95% BCa CI	P-value
Direct	0.56	(-0.04; 1.07)	0.064
Indirect	1.53	(1.10; 2.14)	<0.001
Total	2.09	(1.71; 2.48)	<0.001
Mediation Model 1c – Willingness to purchase	Estimate	95% BCa CI	P-value
Direct	0.35	(-0.27; 0.90)	0.260
Indirect	1.70	(1.24; 2.28)	<0.001
Total	2.04	(1.61; 2.46)	<0.001

Source: own

a significant indirect effect of company responsiveness to existing consumer posts on both their attitudes toward the company (Estimate: 1.53; 95% BCa CI: (1.10; 2.14); $p < 0.001$), and their willingness to make a purchase (Estimate: 1.70; 95% BCa CI: (1.24; 2.28); $p < 0.001$, consequent to participants' perceptions of company responsiveness to their own posts. With regard to insignificant direct effects, a complete mediation was identified in both cases; for additional details, see Tab. 4. By comparison, in Vendemia's (2017) study, a complete mediation was found only for willingness to make a purchase, whereas for attitudes toward the company, there was an incomplete mediation.

3.2 Personalization

The next set of hypotheses examined how the type of company responses to consumer posts influences perceptions of personalization. *H2a* predicted that the greater the perception that viewers receive personalized responses to existing consumer messages from companies, the more they are convinced those companies will provide personalized responses to their own messages. We proceeded analogously as in the previous case for responsiveness (ANOVA test, mediation analysis).

The results of the ANOVA test showed significant differences in perceptions of personalized content on the Facebook page ($F(1; 95) = 12.0$; $p < 0.001$; $\eta^2 = 0.11$; see also Model 2a results in Tab. 5). Consistent with *H2a*, participants reported that it was more likely that they would receive a personalized response to their own posts when the company provided

personalized responses to other users' posts ($M = 5.35$; $SD = 1.07$), than when the company provided non-personalized responses ($M = 4.59$; $SD = 1.10$). Thus, *H2a* is supported in reference to Vendemia's (2017) study.

Mediation analyses were conducted to examine how the nature of existing company-consumer interactions indirectly influenced how participants assessed the quality of potential future interactions (*H2b*), evaluated the company (*H2c*), and their willingness to make a purchase from the company (*H2d*), consequent to their perceptions that they could receive a personalized response from the company. For each of the three outcomes, two linear models were constructed. Specifically, Model 2a was the first model for all the considered outcomes, followed by Model 2b as the second model for quality of future interaction, Model 2c for attitudes toward the company, and Model 2d for willingness to purchase (see Tab. 5). The effect of the personalized response on the variable outcomes in Models 2b, 2c, and 2d is statistically significant, and a positive sign in the estimates demonstrates its expected positive effect (*H2b*, *H2c*, *H2d*).

Furthermore, the results in Tab. 6 indicate a significant indirect effect of the company providing personalized responses to existing consumer posts, consequent to participants' perceptions that they could receive a personalized response from the company, on the quality of future interaction with the company (Estimate: 0.29; 95% BCa CI: (0.12; 0.54); $p < 0.001$), their attitudes toward the company (Estimate: 0.22; 95% BCa CI: (0.08; 0.45); $p < 0.001$), and their willingness to

Tab. 5: Regression model results for perceived responsiveness (as a possible mediator), quality of future interaction, attitudes toward company, and willingness to purchase

Model 2a – Perceived personalization	Estimate	SE	P-value	95% CI
Personalized response	0.76	0.22	<0.001	(0.32; 1.20)
(Intercept)	4.59	0.15	<0.001	(4.28; 4.90)
Model characteristics: $R^2 = 0.11$; $F(1; 95) = 12.0$; $p < 0.001$				
Model 2b – Quality of future interaction	Estimate	SE	P-value	95% CI
Personalized response	0.62	0.14	<0.001	(0.34; 0.90)
Perceived personalization	0.38	0.06	<0.001	(0.26; 0.50)
(Intercept)	2.99	0.29	<0.001	(2.40; 3.57)
Model characteristics: $R^2 = 0.48$; $F(2; 94) = 43.2$; $p < 0.001$				
Model 2c – Attitudes toward company	Estimate	SE	P-value	95% CI
Personalized response	0.39	0.14	0.006	(0.11; 0.67)
Perceived personalization	0.28	0.06	<0.001	(0.16; 0.41)
(Intercept)	3.87	0.30	<0.001	(3.28; 4.46)
Model characteristics: $R^2 = 0.31$; $F(2; 94) = 21.2$; $p < 0.001$				
Model 2d – Willingness to purchase	Estimate	SE	P-value	95% CI
Personalized response	0.08	0.22	0.733	(-0.37; 0.52)
Perceived personalization	0.48	0.10	<0.001	(0.29; 0.68)
(Intercept)	2.66	0.47	<0.001	(1.72; 3.60)
Model characteristics: $R^2 = 0.24$; $F(2; 94) = 14.5$; $p < 0.001$				

Source: own

Note: Personalized response was entered into the models as 0–1 quantity (0 – low personal response, 1 – high personal response).

Tab. 6: Direct, indirect and total effects of personalized responses on quality of future interaction, attitudes toward company, and willingness to purchase

Mediation Model 2b – Quality of future interaction	Estimate	95% BCa CI	P-value
Direct	0.62	(0.34; 0.89)	<0.001
Indirect	0.29	(0.12; 0.54)	<0.001
Total	0.91	(0.61; 1.21)	<0.001
Mediation Model 2c – Attitudes toward company	Estimate	95% BCa CI	P-value
Direct	0.39	(0.13; 0.65)	0.003
Indirect	0.22	(0.08; 0.45)	0.001
Total	0.61	(0.32; 0.90)	<0.001
Mediation Model 2d – Willingness to purchase	Estimate	95% BCa CI	P-value
Direct	0.08	(-0.37; 0.55)	0.758
Indirect	0.37	(0.14; 0.68)	<0.001
Total	0.45	(-0.02; 0.90)	0.059

Source: own

make a purchase (Estimate: 0.37; 95% BCa CI: (0.14; 0.68); $p < 0.001$). The significance test of direct effects, as it relates to the case of quality of future interaction and attitude toward the company as outcomes, is an incomplete mediation; for willingness to purchase, it is a complete mediation. These findings concur with those from Vendemia (2017).

3.3 Distinct Components of Selected Posts

Eye tracking was used to obtain information on the distinct components of posts that meaningfully impact perceptions of interactivity. The research focused on obtaining the customer's point of view is subsequent to the results collected using eye tracking:

First, Fig. 3 presents a focus map of the experimental web page and its viewing by nine respondents. This figure only documents that participants viewed all posts. Identical results

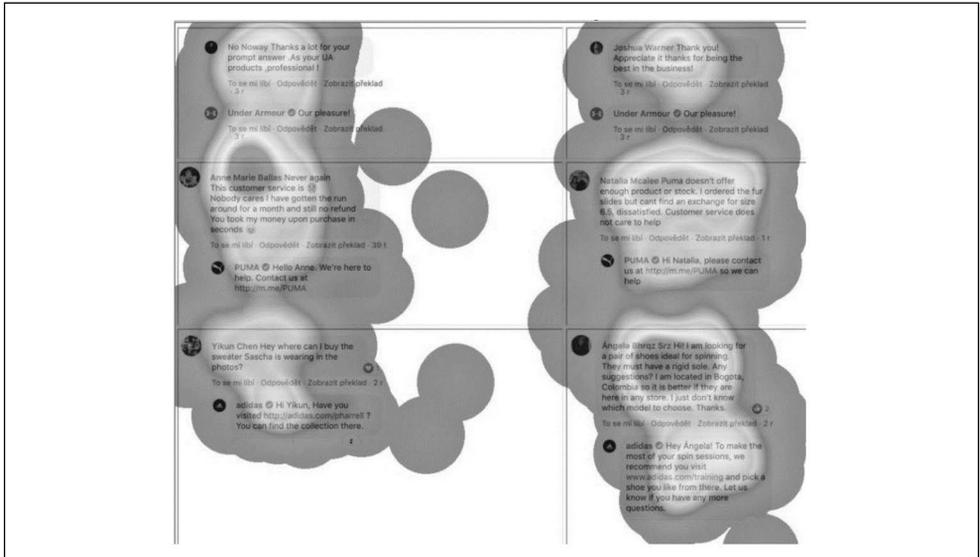
were obtained for the other two groups and additional two experimental web pages.

Thereafter, results obtained through heat maps were used for the agglomerated analysis of the visual exploration patterns in a group of users. The average time spent by the participants on a web site varies, depending on the scope of each experimental page. This was 23.1 s (Min. 22.4 s, Max. 23.9 s) for the no-response condition, 81.6 s (Min. 50.7 s, Max. 87.7 s) for low personalization response condition, and 92.1 s (Min. 20.6 s, Max. 141 s) for high personalization response conditions. Fig. 4 and 5 show evidence of a considerable amount of time spent on the web page that received the greatest amount of interest, which is that with that with a high personalization response condition. The 'hot' zones or zones with higher density designate where the participants focused their gaze with a higher frequency. Overall, the high heat maps received two positive posts, five negative posts, and

Fig. 3: Focus map of experimental Facebook page with no response condition (n = 9)

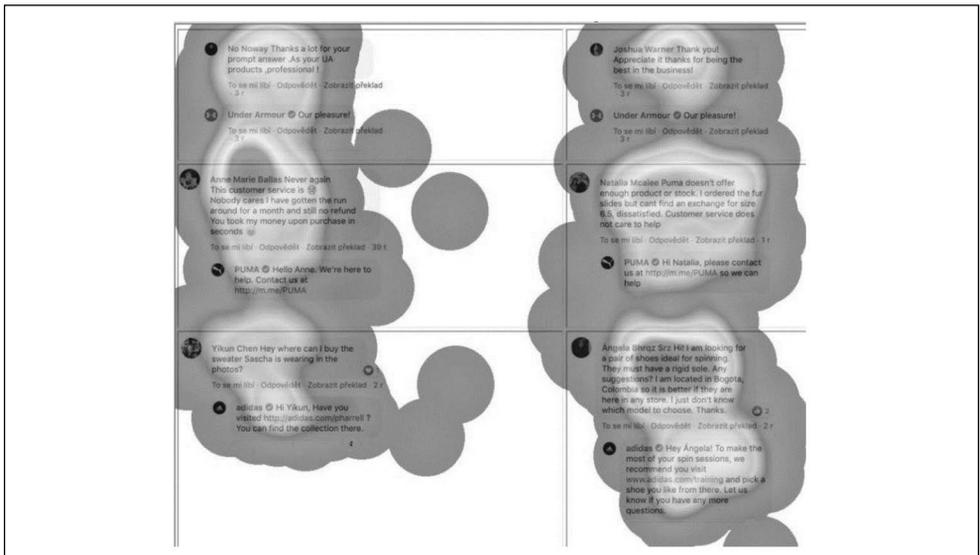


Source: own

Fig. 4: Heat maps of experimental web pages with low personalization


Source: own

Note: Hot zones in grayscale version are dark in the bright field.

Fig. 5: Heat maps of experimental web pages with high personalization


Source: own

Note: Hot zones in grayscale version are dark in the bright field.

three posts with a customer's question from all three experimental web pages. This signifies that the negative post with a customer complaint received more attention from participants.

Lastly, an analysis of gaze plots shows the time sequence of participants looking, or specifically where and when they looked. In the foregoing discussion, the participants paid minimal attention to the first option (page with no responses by companies). An analysis of two additional options with responses by companies showed that twelve participants first looked at the left and then the right side of the experimental page, most often from top to bottom. Six participants also viewed experimental pages from the left side, immediately top right side, and then middle level and then bottom level of the selected web page. Additionally, at the end of the task, nine participants promptly disregarded the displayed posts. However, this is considered a secondary effect associated with the form of the experiment.

4. Discussion

Jacobson et al. (2020) emphasize that SM research is extremely valuable for business to better understand what their customers and the public are communicating about their products or services. Thus, it is important to understand what factors influence the perceptions of interactivity and personalization on SM and persuade consumers make a purchase. Shanahan et al. (2019) argue that the effectiveness of personalization is well documented in traditional media, but little is known about the effects of personalization in SM. In addition, Verhagen et al. (2014) point out that it is difficult to evoke in customers the feeling of personal approach in online communication.

For example, using three experiments, Li (2016) demonstrated that, when people perceive a message as personalized (regardless of whether it is really personalized or not), more favorable outcomes can be observed. In particular, Vendemia (2017) found that consequent to perceptions thereof, the responsiveness by companies to existing consumer posts, indirectly affects viewers' attitudes toward the company and willingness to make a purchase. Furthermore, she demonstrated, in the same way for existing consumer responses, this indirectly affects

viewers' assessments of the quality of future interaction and willingness to make a purchase. This Czech study confirmed her findings in the United States. In addition, the findings are consistent with those of Coelho et al. (2018) or Novotná (2018), who indicated, that in mass markets, consumers engaged in SM brand communities may develop positive attitudes toward the brand, such as trust and loyalty. Our results are also consistent with the findings of Shanahan et al. (2019), who proposed that perceived personalization positively impacts consumer brand engagement and brand attachment on Facebook. On the contrary, this research does not follow surveys focused on bandwagon effect (Wu & Lin, 2017). This effect is usually built on assumption that message on SM is annotated with a high user rating and then individual's perceived trust in an electronic WOM. The conducted experiment was focused on perceived personalization in communication between company and customers on SM and not only on positive but also on negative posts.

Moreover, our research used embedded eye tracking survey to obtain more substantial information about the distinct components of posts that meaningfully impact perceptions of interactivity. The analysis of gaze plots and heat maps were used to explore visual patterns in a group of users. Posts containing negative communication, followed by those with a customer question, attracted the greatest attention of the participants. First, the findings from the eye tracking reveal the inadequacy of communication in the absence of a response from a company. Second, by contrast, they show the importance of a company's reaction to consumer complaints and questions. Heat maps also show that participants fixated on the personalized posts more frequently and view them longer (cf. Pfeffelmann et al., 2020). Einwiller and Steinlen (2015) argue that responding to complaints voiced on an organization's SM site – in such a way that satisfies the complainant – is important for managing stakeholder perceptions and the company's reputation. Additionally, they found that response strategies for resolving customer complaints are used less often.

For the most part, it can be concluded that this research supports the assertion of Wang and Kim (2017) and De Vierman et al. (2017) that SM has an impact on brand communities as a platform on which consumers interact. It

needs to be further monitored whether future purchase decisions will be correspondingly influenced by the manner in which brands respond to the pandemic (cf. Kirk & Rifkin, 2020).

SM users are exposed to a multitude of influences when using SM platforms. These influences include marketing communication messages (paid advertising or through content posted on their brand pages), peer-information sources (such as comments or shares), and the inherent characteristics of the specific social network site (e.g. trust, control, and privacy concerns) (S et al., 2020; Wiese et al., 2020).

4.1 Limitations

A number of limitations of the research survey must be considered. First, the experimental conditions presented extreme cases to maximize the experimental variance. Second, this research did not consider the actual purchase and word-of-mouth behavior. Third, the data were obtained through convenience sampling, which is acceptable for an explanatory study and quasi-experimental research design (Creswell, 2014). Final-semester business students from one faculty were chosen as respondents for this research. Using students as respondents has both advantages and disadvantages; for instance, the sample is easier to obtain and more homogenous but can reduce the findings' external validity and generalizability. Any findings can be generalized only to the population from which research sample was taken (Bryman, 2012). Conversely, this type of sample allows us to compare our results with those of a previous study (Vendemia, 2017) that used similar participants and it is obvious that findings from the study have some kind of broader applicability. Fourth, our study references Vendemia's (2017) experiment from the United States and tested theoretical relationships in a relevant context only in a single Central European country.

To test other cultural contexts and for further validation of identified relationships, future research could be conducted globally, for example in Asian countries. The influence of possible moderators of the investigated relationships can also be considered. Furthermore, eye tracking was used to collect data about customer activities that can assist in understanding how people acquire information from web pages. Additionally, it can also be

combined with a think-aloud protocol or similar methods to obtain more detailed qualitative findings.

Conclusion

The experiment confirmed that the company's response to consumer posts and their personalization degree influences the attitudes and behavior of the post readers towards the company through the perception of the company reaction. In addition, eye-tracking indicated that the personalization degree of the response to the post prolongs the reader's visual attention.

The research expands on the findings of Vendemia (2017) according to different cultural identities and provides a better understanding of which distinct components of a message meaningfully influence perceptions of interactivity. Marketing communication on SM is able to generate a great degree of customer engagement, and consequent to the perceptions of responsiveness, indirectly influence viewers' attitudes toward the company and their willingness to make a purchase. The findings of this research confirm the importance of active and personalized communication for those experts responsible for company communication on SM. The findings also show how particular components of a message meaningfully impact the perceptions of interactivity between company and customer of other viewers in practice. The conducted research underlines effectiveness of personalization in brand communication on SM.

Acknowledgement: *The results are the part of projects SGS SGS-2020-015 by University of West Bohemia and by the Czech Science Foundation (GACR) under grant number 19-00015S.*

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