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User Engagement in Corporate Facebook Communities

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Abstract: The stimulation of user engagement has received significant attention in extant research. However, the theory of antecedents for user engagement with an initial electronic word-of-mouth (eWoM) communication is relatively less developed. In an investigation of 576 unique user postings across independent Facebook (FB) communities for two German firms, we contribute to the extant knowledge on user engagement in two different ways. First, we explicate senders' prior usage experience and the extent of their acquaintance with other community members as the two key drivers of user engagement across a product and a service community. Second, we reveal that these main effects differ according to the type of community. In service communities, experience has a stronger impact on user engagement; whereas, in product communities, acquaintance is more important.

Keywords: Social media; User engagement; Acquaintance; Experience; Word-of-Mouth; Community type; Regression analysis

1 Introduction

Word-of-mouth (WoM) communication, long recognized as a highly influential source of information, has gained renewed prominence with the proliferation of social media and electronic WoM (eWoM) ([TLF14]). Both WoM and eWoM are customer-generated, useful sources of information and they are considered more credible, empathetic, and relevant than a communication imposed upon consumers by marketers ([BS01]). As firms continue to engage in customer co-creation, multi-channel strategies, and integrated communication, WoM and eWoM are gaining importance more than ever. The rise of the internet has created online forums, social media, and communities, which have, in turn, increased the scope and implications of eWoM for customers and firms ([Ma13]). Researchers have examined a diverse set of consequences of eWoM, for example, brand purchase probability ([EHL08]), a tendency to recommend ([Li06]), involvement ([MO01]), product adoption ([TS08]), and feedback on products and services ([He04]).

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Similarly, several studies have examined the antecedents of eWoM, for example, affective characteristics of the message ([BM12]), relational factors ([CK11]), and individual traits ([MPZ07]). While the generation of eWoM has received ample attention, the concept of user engagement after an initial eWoM communication is relatively less developed ([He04]; [HWW03]; [HGB14]; [Ya12]). User engagement is the connectedness with the eWoM message by a receiver, and is conceptualized as behavioral manifestations such as likes and comments on a content on an electronic portal ([CMS09]; [Do10]). Firms need a better understanding about the specific preconditions for user engagement with eWoM, as they are investing heavily in digital marketing campaigns on social media. Such campaigns are particularly successful, if the group of receivers of an initial message spread the word, like and share the content, or contribute by way of user generated content ([HGB14]). Therefore, firms need to develop a better understanding about the generation of eWoM and its adoption within an online community. This research conceptualizes user engagement, and illumines two of its important drivers, namely, the sender's prior experience with the product or service and her network acquaintances, in generating efficacious eWoM about the product or service. We conceptual model is tested in the customer-tocustomer (C2C) context of two different online communities of two German firms: (1) a service community of a telecom provider and (2) a product community of a car manufacturer. We posit that acquaintance and experience impact differently across product and service communities.

2 Conceptual Framework

As a first step towards a deeper understanding about the generation of eWoM and its adoption, within an online community, we develop a clear conceptualization of user engagement. Bijmolt et al. ([Bi10]) and Doorn et al. ([Do10]) define customer engagement as the behavioral manifestation of a customer toward a brand or a firm that may affect the brand or firm and its constituents in other ways than purchases, e.g. WoM, recommendations, helping other customers, blogging, writing reviews, and participation in brand communities. Our conceptualization is similar, albeit more connected to our context, and captures specific interactions between consumers, brands, companies, and/or other members of an online community ([BR11]; [Br13]). Posting content on social media platforms elicits several types of user interaction behavior, for example, likes, comments, shares, and offline conversations ([HGB14]; [LHN14]). However, opportunities to share or the possibility of engaging in an offline communication are improbable, and were not captured by either of the companies that furnished the data for this study. Therefore, in this study, and motivated by similar conceptualization of brand post-popularity by de Vries, Gensler and Leeflang ([DGL12]), the modes of likes and comments were considered the primary and most relevant way of user engagement.

Likes denote a positive affect about e-contents and posts. Comments are independent text messages, addenda or responses to another post. However, comments are more broadbased than likes because they allow the sender to express a diverse set of utilitarian, rational, and emotional content ([Ma13, p. 276]). The variation in the composition of likes and comments as constituents of user engagement may be viewed as a close proxy for changes in the affect and utility dimensions of user engagement ([CMS09 p. 322]). Therefore, we come up with an interactive and traceable conceptualization of user engagement based on the likes and comments on an initial eWoM communication.

Due to strict space limitations in this version of the paper, we are unfortunately unable to thoroughly elaborate the theoretical foundation of our antecedent constructs, acquaintance and experience. However, it can be argued that these constructs and relationships are to a certain extent self-explaining and that most of them are understandable for an informed reader. Further information about construct definitions, operationalization, and item scale are provided in Table 1.

Beside the clarity about antecedents of user engagement, this research also hypothesizes a moderating effect of community context on the main effects. While several typologies of online communities are used in extant research ([Ko99]), the differentiation between product and service communities is a fundamental distinction. Our use of community type implies a unique focus with regard to its current conceptualization in extant research. The attitude of the members of service and product communities has been investigated by Kozinets ([Ko99]) due to the difference between information versus relationship orientation. We extend this approach by illustrating the trends and patterns for information and relationship orientation in both community types. Social media communities develop in accordance with the specific and varied communication interests of community members. Consumers might see a corporate community as an appropriate place to discuss their questions, problems, and complaints. In the service community, customer service is the focal point of interest, and the communication processes between corporation and users, as well as between users with a service focus, lead to the development of a service community. Such communities focus on functional issues. Information sharing is the primary motive and interactions are built around instrumental aspects, efficacy, and expectancy-related incentives arising from participation ([WF04]). Therefore, prior experience is a powerful driver for user engagement within a service community. On the other hand, product communities are also built around communication about products. The main objectives in joining a product community are networking with other product users, as well as showing and promoting affective emotions toward the product ([DGL12]). In such cases, online users tend to report their experiences with specific products. Corporations stimulate these communication preferences via specific product information, pictures, videos, or test reports. Acquaintance plays a major role in such product- and brand-driven dialogues, as community members try to pursue an interaction with established contacts ([Ph04]). Linking value, which is an added source of value within these communities, is created over and above the value embedded in the product ([Co97]).

Therefore, we summarize the following hypotheses. Figure 1 represents an overview of our conceptual model:

H1: The level of acquaintance of a sender with other members in a social media community has a positive impact on the user engagement with the eWoM generated by the sender.

H2: The experience of the sender related to the usage of specific products and services in the eWoM communication has a positive impact on user engagement with the eWoM generated by the sender.

H3: The type of community moderates the relationship between acquaintance, experience, and user engagement: service communities particularly amplify the positive effect of sender experience on user engagement.

H4: The type of community moderates the relationship between acquaintance, experience, and user engagement: product communities particularly amplify the positive effect of acquaintance on user engagement.

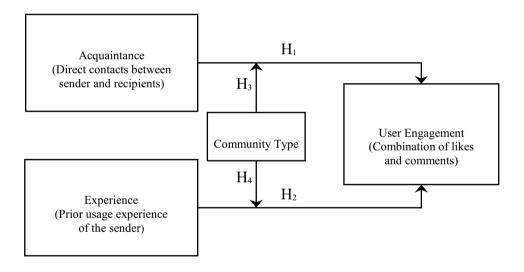


Figure 1: Conceptual Framework

3 Method

Our research tested the formulated hypotheses using data supplied by (1) the customer service department of a German telecommunication (henceforth, service) company and (2) the marketing department of a German car manufacturer (henceforth, product). Both companies manage a corporate fanpage on Facebook (FB). We chose this as a relevant platform for our study because FB fanpages offer similar functionalities as other eWoM platforms such as blogs, forums, and other social media websites, Furthermore, FB is a prominent platform for information sharing and forms the main source of online engagement between the companies that participated in this study and their consumers. The availability of an own service community on FB is a corporate strategy for stimulating eWoM generation about customer experiences, general questions, and complaints. Users are able to read and consume the generated eWoM, post likes and comments on the postings of their peers, which, in turn, generate a new wave of eWoM. Accordingly, the product community used in our research provides a comparable fanpage on Facebook to communicate with online users about new products, test reports, and other issues related to the company brand. In contrast to the community of the telecommunication service provider, service plays no major role in the case of the car community. Customers of the car company interact with the local car dealer, and the communication focus of users in the car community consists of product experiences and questions about the products of the company. We decided to use these two specific communities on Facebook in order to display differences between product and service communities.

Table 1 summarizes the constructs outlined in our conceptual model with control variables and information about operationalization and scaling. Our data was derived from actual consumer activity, instead of perception-surveys. Therefore, while we were limited by number of measures we could collect, research evidence suggests that it is advantageous to use precise single-item measures in such situations ([DM01]). In fact there is strong advocacy for the specific benefits of single-item measures in even study on value, attitude and evaluation ([SR14]).

The unit of analysis in this paper is represented by unique user postings (UUPs) on the corporate fanpage. User postings are considered unique if a user opens a new message/conversation stream on a specific issue. In case of multiple postings and comments on the same issue, we only analyzed the initial user posting and the specific reaction to this single post in terms of likes and comments. Additionally, we filtered off-topic posts and posts generated by the fanpage owner out of the communication stream. Therefore, only pure and specific posts of users were considered as unit of analysis. Furthermore, we analyzed a full sample of UUPs in both communities over a two-month period. Therefore, we were able to integrate 276 UUPs for the telecom community and 300 user postings for the automobile community.

Construct	Definition	Operationalization	Item Scale	
User Engagement	Engagement of the audience generated through UUPs.	Sum of likes and comments divided through the reach of a post.	0-1 (0=low engagement, 1=high engagement)	
Acquaintance	Level of acquaint- ance between the sender and multiple receiv- ers of a post.	Sum of direct active contacts between the sender and the audience reached by a post.	0-n (0=no direct contacts, n=n direct contacts)	
Experience	Experience of the sender related to the usage of products and services.	Content analysis of each post, differenti- ation into two cate- gories of user experi- ence.	0-1 (0=no experience, 1=factual or per- ceive- able experience)	
Membership length	Duration for which the sender has been a member of the com- munity.	Evaluation of the number of days the sender has been a community member.	0-1 (0=less than 30 days, 1=more than 30 days)	
Gender	Gender of the sender generating an UUP.	Identification of gender by means of FB user name or FB profile analysis.	0-1 (0=female, 1=male)	

Tab. 1: Construct definitions, control variables, operationalization, and item scale

For each posting, three conceptual constructs and two control variables (membership length, gender) were measured in the two communities. User engagement triggered by each post was measured in terms of likes and comments. When a user likes a post on FB, this causes the content to be pushed into the newsfeed of the user's friends on Facebook. Therefore, peers who are directly connected to this specific user can read the post in their newsfeed. Depending on the edge rank algorithm used by FB (while collecting data), a new post on the private page of a user may not be delivered to all members of the user's network. Nevertheless, a like posted on the corporate fan-page leads to a higher reach on the part of the UUPs and to an increased probability of further user engagement. In contrast, given FB's default user settings, a comment on UUPs has no impact on this post's reach. Therefore, comments on UUPs are only able to reach the existing community on the corporate fanpage.

Adopting these preconditions, we developed an index for the measurement of user engagement on FB, representing this as the sum of the number of likes and comments for each UUP divided by the total reach of each post. These measures are commonly used in academics and industry as indicators for user engagement on Facebook ([LHN14]).

The acquaintance between the sender (i.e. author of UUPs) and the recipients of eWoM was operationalized by assessing the number of direct contacts between the author of a post and the audience on FB. The audience of a specific post on FB is determined by (1) the contacts (fans) on the corporate fanpage and (2) the users reached through the likes of other users. Using this definition of the audience, we measured the number of recipients of a specific post who are directly connected to the sender's individual network. Therefore, we extracted the user IDs of the fans on the corporate fanpage and the user IDs on the individual pages reached through likes, and then compared this data with the user IDs connected to the sender's network. We used data from Mediabrands Audience Platform, a prevalent social media monitoring software, to assess the number of users in the audience who are directly connected to the sender ([VH14]). Thus, we posit that a high number of direct contacts within the audience will display a high level of acquaintance.

Finally, the sender's experience related to the usage of corporate products and services was measured using content analysis of each single post ([MHS13]). Therefore, we extracted the original text of each single UUP out of FB and imported the text passages into MAX QDA, a software solution for qualitative data analysis. This research investigated the impact of experience on user engagement. Thus, it was particularly important how the other users perceive the factual expertise of the sender related to specific products and services. Adopting this perspective, we developed a keyword system for the analysis of the raw text material. Thus, we were able to measure the experience construct by analyzing qualitative data and transposing this data into an ordinal scale.

Membership length was calculated as the duration for which the sender has been a member of the community. The aim was to understand how the messages from newbies impact user engagement. Hence, we measured the variable by using a dichotomous scale of high length (more than 30 days) and low length (less than 30 days) of membership. The split of the two sub-groups at 30 days refers to the fact, that we are especially interested in the differential impact of newbies (membership length less than 30 days) on user engagement. Engagement indicators in both communities display that user engagement seems to be higher in the first or early stages of community membership. Thus, we decided to give a specific analysis to potential differences between membership at an early stage and long-term membership. Furthermore, we identified the gender of the sender by analyzing their FB user name. If the senders used nicknames, we additionally checked the information provided in their personal profiles.

4 Results

The model shown in Figure 1 was analyzed by multiple regression analysis. Integrating our data about the service and product community into SPSS, we measured the non-parametric correlation coefficients between the independent and dependent variables. We followed the general regression diagnostic procedures outlined by Hair, Black and Anderson ([HBA10]) and Wooldridge ([Wo12]). Accordingly, we tested the distribution characteristics for each variable. The variables acquaintance and user engagement in the service community displayed non-normal distribution. So, we performed a logarithmic transformation on these variables in order to secure normal distribution characteristics. Finally, all variables in our data set were without significant deviations and passed Lilliefor's test for normal distribution. Partial scatterplot between independent and dependent variables was analyzed, indicating that linearity is a reasonable assumption. Subsequently, we tested multiple regression models with and without control variables. Finally, we estimated a multiple regression model in order to test the general model fit and the standardized coefficients for the main effects for H1 and H2 (model 1). Our model 2 test incorporates the effects of the factor variable community type, while model 3 checks for the moderating role played by community type (product or service community) through its interactions with the two predictor variables. Moreover, we ran the multiple regression procedures for both communities in order to compare the empirical results for different community types. Results provided evidence for the main effects as also for the moderation hypotheses displayed in H3 and H4.

Our research aims to study user engagement in eWoM and its antecedents. Acquaintance and experience of the sender were the predictor variables used in the multiple regression model. Online community type was used as the interaction term for checking the moderation effects. Table 2 shows regression parameter estimates, t-tests, goodness-of-fit measures, and significance levels for each predictor with user engagement. Our test for control variables, membership length and gender shows no significant direct impact on user engagement. We also tested if the two control variables moderate the impact of experience or acquaintance on user engagement; however, multi-group and interactional analysis indicated no significant differences between the two sub-groups. The overall fit indicators (R2, adjusted R2) provided strong support for the conceptual model. Regarding the main effects for the two independent variables of interest, both acquaintance and experience showed statistically significant positive predictive relationships with user engagement ($\beta = .08$, p < .001 and $\beta = .32$, p < .001). These results supported H1 and H2, and the results are replicated in both product and services community, indicating strong predictive validity of the model. Furthermore, the relative impact of each predictor differed in each researched community type. In the service community, experience is by far the most important driver of user engagement. A multistep regression model showed that experience counts for an R2 of .40, whereas acquaintance only explains an additional R2 of .08.

User Engagement	Model 1		Model 2		Model 3	
	β	t-value	β	t-value	β	<i>t</i> -value
Intercept	2.40	40.4***	2.06	32.4***	2.48	41.9***
H1: Acquaintance	.08	2.9**	.33	9.5***	.12	3.5***
H2: Experience	.32	9.9***	.26	8.5***	.18	4.7***
Community Type (CT)			(-).38	(-)10.5***	-2.92	(-) 19.2***
H3: Acquaint. * CT					1.00	15.8***
H4: Experience * CT					.10	2.1*
Model F Value	79.62		99.71		160.60	
R^2	.22		.34		.58	
Adjusted R ²	.22		.34		.58	
N	576		576		576	
F in \mathbb{R}^2			104.0***		162.9***	

^{***} p < .001; ** p < .01; * p < .05

Tab. 2: Regression results for the service and the product communities

This result is also reflected in different β -values for acquaintance (.34) and experience (.45) in the services sample. A multistep regression model in the product community returned reversed results. In this case, acquaintance had an R2 of .42, whereas a model with experience and acquaintance as precursors had an R2 of .48. Again, these results are reflected in the β -values for acquaintance (.63) and experience (.28). In our test for moderation in model 3 shown in Table III, the interaction of community type with acquaintance and experience was found to be significant (β =1, p<.001 and β =.1, p<.05). A nested F test using models 2 and 3 revealed significant difference between the regression models in the two community types (F(2,570)=162.86, p<.001) ([Ch60]). This increment suggested that a model including the two-way interaction is superior to a model without this interaction. The R2 increased from .22 in model 1 to .58 in model 3, which is equivalent to an increase of 36 percent. Overall, our multi-group and interactional analysis supported H3 and H4 in our conceptual model.

5 Discussion

Our research makes important theoretical contributions. We illustrate and test the multidimensional nature of user engagement that comprises two lower order factors, one affective and the other functional. User engagement in eWoM generation can plausibly be seen as a combination of emotional and functional aspects. Our post-hoc analysis, discussed in detail in the prior section, offers interesting and useful heuristics for analyzing contextual differences in eWoM consumption and user engagement in more sophisticated and complex systems. Insights into the mechanisms by which a set of consumers can engage with other consumers give rise to new options for utilizing such segments of consumers as complementary service providers. Such specificity about the generation and usage of eWoM may turn out to be particularly relevant, as it is based on data obtained from a naturally controlled context of community practices. While prior research has focused purely on the generation of eWoM, the assessment of factors that would actually cause user engagement with a specific peer-to-peer message has remained equivocal. Our empirical test reveals that acquaintance and prior usage experience are important determinants of user engagement in product and service communities. Corporations might particularly benefit from eWoM if the content is liked and commented upon by multiple other users. Such effects further vary with the experience of the sender and across product and services. Specifically, we found that prior user experience is a strong precursor of user engagement in service communities. Therefore, service communities may be considered as expert communities. Corporations should concentrate their community strategies on the identification and utilization of such power users. Effective strategies in service communities might include incentive programs or special social status for subject matter experts. In contrast, acquaintance is the most important driver of user engagement in product communities, indicating that in a product community, 'how many' individual one is connected with is more important than, 'whom' one connected with. Therefore, managerial action will benefit by focusing on targeted linkages in service communities, and diverse linkages in product communities, for best results on user engagement. Altogether, this research offers multiple theoretical and managerial implications for strategic management of user engagement in eWoM. Strategies, which we hope would open new pathways for firms to mitigate the current effect of decreasing reach and engagement in online communities.

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