Influencing User Attitudes by Managing Online Brand Communication in E-Shops

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Online brand communication is facing different challenges than traditional brand communication as the evolution of the Internet fundamentally changes the principles of communication itself. To account for these changes, we analyze how the communication of online brand identity dimensions affects brand attitude formation of first time e-shop visitors. We first identify the specific dimensions that are relevant for transporting the brand identity via the e-shop with a thorough literature review. By integrating the identity-based and behavior-based brand approach, we integrate the corporate communication level with the individual level of customer perception and develop a brand communication model to test the influence of the identified dimensions on brand attitude. We find that perceived information quality as well as entertainment and personalization have a strong effect on visitor brand attitude formation.

1. Introduction

Since the past decade the development of the Internet has a strong impact on marketing communication in general and brand communication in particular (Chan-Olmsted 2002). The parameters for the implementation of successful brand communication are changing radically through aspects like interactivity, multimodality, digitalization, and virtualization enabled by the Internet (Christodoulides et al. 2006). This requires companies to rethink their existing communication and brand building strategies and to develop new ways to reach their audience on the web (Peterson et al. 1997). Through the rise of social media, customization, and other phenomena the audience itself is also increasingly sophisticated in dealing with brands and the information overload it is confronted with. Although traditional concepts of brand theory seem to generally apply to online brand communication, it is necessary to identify online specific concepts of communicating and perceiving brand signals in order to successfully build an online brand.

In today’s online environments it also has to be accounted for the interactions between corporate and product brand, or even the vendor brand, which calls for an integrated view of online brand communication. But as we analyze the effects in e-shops, we focus on online brand communication from a corporate level perspective prevalent in these settings. Furthermore, the audience of an e-shop is manifold and consists of multiple stakeholders, but the most critical incident for a brand is the point where potential customers visit the e-shop for the first time. To successfully improve online brand communication it is thus necessary to analyze this “first moment of truth”, where the visitor decides to stay or to leave the shop’s website. However, existing research fails to explain the influence of communicated brand signals via the shop site on signal perception by visitors and is hence disregarding the effects on early brand attitude formation.

In our work, we first identify the relevant dimensions of a corporate’s brand identity in an online environment that go beyond the offer/product itself and function as the first brand signals a visitor is confronted with when entering the e-shop (even before completing a purchase). We then analyze the impact of these dimensions on the formation of favorable brand attitudes. We also integrate existing brand theory approaches to simultaneously address the corporate (identity-based approach) and customer level perspective (behavior-based approach) of brand communication. Furthermore, we apply the concepts to the online context and create a specific online brand communication model that best reflects the online specific dimensions of brand identity communication. In the end, we empirically test how the different dimensions of online brand communication influence attitude formation in a specific e-shop.
2. Online Brand Communication

In traditional branding theory there exist two major approaches that provide basic insights into brand communication. Especially, the emergence of the cause-and-effect-oriented, psychological understanding of brands in the ‘70s had decisive influence on the progression of branding theory (DeChernatony/Dall’Olmo Reiley 1998). This behavior-based brand approach (Aaker/Keller 1990) no longer takes the perspective of the brand owner but the perspective of the customer and his behavior (Keller 1993). According to this view, attitude and behavior are ascribed to a customer’s individual, subjective perception of the brand and are thus influenceable by the mode of brand signaling. The goal is to develop a strong, favorable and unique brand image by integrating all communication and marketing activities to be interpreted by the customer in the intended way (Madhavaram et al. 2005). Creating a strong, favorable and unique brand image is necessary to establish enduring customer brand relationships and competitive advantage in the long run.

The approach finds a strong advocate in Keller (1993) who developed the customer-based-brand-equity-pyramid. He suggests that the fundamental aspect of true brand loyalty is brand salience – the knowledge about a brand’s existence. Next, the associations that are elicited in the customer’s mind by different brand signals lead to a specific brand image that is evaluated in terms of the brand’s potential to satisfy a specific need and leads to the formation of a brand attitude. Whether a positive attitude leads to actual brand loyalty further depends on situational and external aspects like affordability, availability, urgency, and alternatives.

The behavioral approach regards attitude as the central element in mediating the perception of brand identity (image) and brand loyalty. Successful branding thus strongly depends on whether companies are able to positively create and influence brand related attitudes with their branding activities (Madhavaram et al. 2005). Because the approach recognizes identity as the source of image without further specifying it, a new identity-based approach emerges that looks on the concept of brand from a strategic management perspective (Marwick/Fill 1997; DeChernatony 1999) and shifts the focus from the singular level of consumer brand perception to the corporate level of identity creation (Upshaw 1995, Aaker 1996; Kapferer 1997). The diverse conceptualizations of brand identity attribute the relevance of a brand for a customer’s buying behavior to a brand’s identity (Alessandri 2001). According to these concepts, the differential effect lies in the specification of corporate identity and the way it is communicated to all relevant stakeholders (Olins 1990; Fombrun 2006).

Although the multiple paradigms and school of thoughts about corporate identity (Gioia 1998; Van Riel, Balmer 1995) lead to a diffuse picture of the identity construct (Whetten/Mackey 2002), the majority of concepts regard communication, behavior and design as the basic constitutional dimensions of corporate identity (for an overview see e.g. Savatjis/DeChernatony 2005). With this constitution, individual aspects of identity can be structured in relation to the total identity construct and can be traced back to one of the three core dimensions. By this, the interdependence between the perception of identity dimensions and their effects on customer attitude becomes comprehensible and clear (Schmidt 1995). Nonetheless, the identity-based approach does not substantiate the core brand identity dimensions and their specific effects on the customer.

The criticism of both approaches relate to the vague attempt to integrate each other’s perspective. However, in branding theory a synthesis of both – the individual customer level and the corporate level perspective – is necessary to develop a holistic conceptual framework for an adequate brand communication model in an online environment. As existing literature is mainly analyzing the concepts independently of each other rather than taking into account their interaction, we develop a model that integrates both views to show what brand identity dimensions significantly affect brand attitude formation.

3. The Online Brand Communication Model

Combining the behavior-based with the identity-based approach from traditional branding theory builds the basis for our conceptual model to provide a holistic view of brand communication as it integrates the corporate and customer perspective on a brand. The substantiation of the constructs with regard to a specific context further leads to the development of a specific online brand communication model. Therefore, we conduct an extensive literature review to extract all relevant dimensions through which brand identity is communicated in an e-shop and which make up the identity construct. Second, we review attitude theory to understand the attitude formation process and to identify the relevant attitude constructs. Finally, a brand communication model is built to integrate both perspectives and to reflect the relationship between the constructs in a web context. In the empirical part, we then analyze the relationships between the seven identified brand identity dimensions (interactivity, information quality, usability, design, entertainment, personalization, domain name) and the cognitive, affective and conative reactions to their perception and their influence on attitude formation.

3.1. Identification of relevant brand identity dimensions

The first step of the instrument development process comprises the selection and definition of dimensions that best reflect brand identity in terms of corporate communication, corporate behavior, and corporate design. Rela-
Examples of relevant studies | Original terms used | New identity dimension | Core dimension
---|---|---|---
Song/Zinkhan 2003 | Content quality Information quality Information Content Communication Text | Information quality | Corporate Communication
Loiacono et al. 2002 | Accessibility Brand name, logo Domain name Access address | Domain name |
Evanschitzky et al. 2004 | Personalization Individuality Customization Tailored information | Personalization |
Yang et al. 2004 | Entertainment Pleasure Enjoyment | Entertainment |
Foo 2003 | Convenience Control Navigation Ease of use Usability Intuitive operation | Usability | Corporate Behavior
Murphy et al. 2003 | Interactivity Reaction Response | Interactivity |
Janda et al. 2002 | Design Aesthetics Character Media richness Visual appeal | Design | Corporate Design
Loiacono et al. 2002 | Tab. 1: Identification of brand identity dimensions

To condense the numerous expressions used in the identified studies and to name the different dimensions, we consult some online brand experts to do a content analysis by grouping the expressions to meaningful clusters and by labeling each cluster to form the dimensions. These experts include six e-business researchers and nine branding researchers of the academic research community, four e-shop owners selected from the professional network of the

ted to our research interest these dimensions have to be e-shop specific. We screen general web-related branding literature (Ebscohost, SSCI) to identify main brand identity dimensions. In total, 63 relevant empirical research studies are identified published since 2000. Some of the main scientific contributions are presented exemplary in Table 1. As all dimensions researched in these articles are shaped and manipulable by the brand and have a significant influence on psychological processes at the customer’s side, they are clearly identified as signals of brand identity. Corresponding to the concept of corporate identity each dimension also expected to relate to one of the three core brand identity areas (corporate communication, corporate behavior, and corporate design).

Song/Zinkhan (2008) for example, identify determinants that enhance user perception of interactivity in a communication scenario in which consumers send instant messages to an e-shop. Their results indicate that message type is the strongest predictor of interactivity perceptions and that the level of perceived interactivity has a significant effect on attitude towards the shop. Daily (2004) on the other hand shows that restrictive navigation (usability) of a site is perceived as a fundamental barrier for the site visitor and arouses negative psychological reactance that leads to a negative attitude towards the site owner. Moreover, Palmer (2002) identifies interactivity, design, media richness, navigability as major determinants of website success by increasing satisfaction and the likelihood to return.

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authors and nine randomly selected e-shoppers who regularly shop at one or more of these shops. The experts are asked to arrange the huge number of expression stated on name cards to groups, containing expressions with similar meanings. There is no restriction on the total number of groups and no force to use all expressions.

Through the clustering process, almost all expressions are assigned to one of eight dimensions. We also ask the experts to name the categories in a way that best describes and sums up the aspects that belong to the particular identity dimension. In this way, the dimensions of Tab. 1 are identified: interactivity (response, support, dialogue), information quality (usefulness of information), usability (navigability, convenience, ease of use, intuition), design (visualization, character), entertainment (enjoyment, media richness), personalized (tailored information, personalized content), name (access, domain) and offer (product, choice). Since we are interested in the perception of different brand dimensions and their influence on attitude formation during a first time shop visit, we exclude the offer category as the offer can only be assessed after visitors have completed the buying process in the e-shop. The results of the item-sorting test to check expert validity are shown in Appendix I, where we list the PSA (proportion of substantive agreement) and CSV (substantive validity coefficient) indices to the various dimensions. We also check for multicollinearity with the help of calculating the condition index (CI) and the variance inflation factor (VIF). The results in Appendix I show that there is no multicollinearity problem.

3.2. Relevant brand identity dimensions

We suppose that there are context specific communication effects of different brand identity dimensions when considered in an e-shop. In the next section we hence review existing literature to find indicators for possible relationships between the constructs.

- **Interactivity**
  Prior studies suggest that greater interactivity corresponds with an increasing quantity of some website features (Coyle/Thorson 2001; Macias 2003; Sicilia et al. 2005). However, Song/Zinkhan (2008) argue that the mere presence of features does not necessarily affect interactivity and suggest analyzing the perception of interactivity rather than interactivity features. According to Rafaeli’s (1988) interactivity theory, interactivity is a process of message exchange, which makes communication quality (reciprocity of message exchange) the most important determinant of interactivity perception. Furthermore, prior studies confirm a positive relationship between interactivity perception and attitude or behavioral intentions (McMillan 2002; McMillan/Hwang 2002). As we focus on brand identity dimensions, we define interactivity not with regard to the configuration process, but as a purely communication-driven exchange between customer and shop and expect a significant effect of perceived interactivity on attitude.

- **Information quality**
  The quality of information provided by the online brand has a strong impact on the successful use of the e-shop. However, it is rather difficult to define objective criteria for the evaluation of information quality as visitors judge whether or not the information fits to their information needs (Katterattanakul/Siau 1999). Consequently, information quality cannot be assessed independent of the visitors and their intentions (Strong et al. 1997). Wang/Strong (1996) develop a conceptual framework to analyze the different aspects of information quality that are important to customers in general. As a result, four types of information quality are distinguished.

  Intrinsinc information quality denotes quality in its own right and mainly relates to accuracy and credibility of information (Huang et al. 1999). For example, Wind/Rangaswamy (2001) conclude that the provision of the right information is key to the success of every e-shop. Contextual information quality denotes the context-specificity of the information provided and its resulting ability to support the customers’ tasks (Strong et al. 1997). The third type is the representational quality of information, which relates to the format of information representation. This is not restricted to simple website design with logo and colors but includes the preparation of content with multimedia elements in order to simplify information processing. Therefore, it is important to make a distinction between simple design and multimedia entertainment elements, which are covered separately in another dimension. The last type is accessibility, which does not only relate to the simple technical accessibility of the site in an online context but also to the ease of memorization of the domain name that allows the visitor to find the e-shop (Huang et al. 1999). Since the domain name dimension covers this aspect, we refer to information quality as intrinsic and contextual quality. Prior research (e.g. Katterattanakul/Siau 1999) suggests a strong impact of perceived information quality on attitude.

- **Usability**
  Rogoll/Piller clearly state that usability is defiantly the most important requirement a customer has on a shop system (Rogoll/Piller 2004, p. 9). A highly usable shop system enables visitors to quickly learn how to handle the information and action requirements that are necessary to order products and find information appropriately. Especially first time visitors have no experience with the particular e-shop, which is why the shop system must support the immediate initiation of a learning-by-doing process. In this case, the challenge of providing a usable system increases with the number of objects represented (product parts, features) and the complexity of their interactions (McGuiness/Wright 1998). Still, perceived usability cannot be objectively evaluated by means of system complexity, but rather by the individual ability and experience to navigate through complex websites and therefore by the subjective perception of system usability.
Design
There exist two different approaches to the definition of design in e-commerce literature. The broader definition not only encompasses the visualization of a website but also navigation, information or interactivity (e.g. Song/Zahedi 2005, Rypolt/Jaworski 2002). Other authors see these elements as typical website elements that cannot be solely interpreted from a design perspective. They narrowly define design as the visual appearance of the e-shop. Green/Jordan (2000) or Norman (2002) for example emphasize that the design of user interfaces has a purely visual intent that promotes pleasure and is too often confused with performance issues of the website. Similarly, Lavie/Tractinsky (2003) regard aesthetic quality of a website as a means to make the products more readily accessible and to increase their desirability. According to this narrow view, we define design as the visual elements of the shop that reflect brand identity. On this level, a website can display information either sober and plain or it can make the information more attractive by using graphical style elements like colors or visualizations (Huizingh 2000). Although the presentation style of a website should facilitate reading and interpretation, an extensive utilization of style elements may impede the stimulation of flow. Thus, successful design does not depend on the mere number of style and visualization elements but on the overall integration of those elements and their ability to make the website visit attractive. However, a lot of research studies measure design objectively in terms of design features (e.g. Neale/McCombe 1997) rather than subjectively in terms of perception. Only Yang et al. (2006) study design in terms of consumer perception and found a positive effect of the overall visual image of the e-shop on consumer brand perception.

Entertainment
Concerning e-shopping, it is helpful to exploit all kinds of multimedia formats to elicit a virtual image of the product that is not yet physically present at the time of buying (Rogoll/Piller 2004). The display of a visually appealing virtual product substitute is necessary to counterbalance the missing touch-and-feel inherent to online business in general. Most effectively, this is done with a continuous, multimedia-based representation of the product during the purchase process. Furthermore, the way content is prepared and displayed in the e-shop influences the effort of information processing and may thus ease positive attitude formation (Steuer 1995).

In a study of Childers et al. (2001) about the functional and hedonistic aspects of e-shopping, for example shopping enjoyment is a significant predictor of a user’s behavioral intentions. Other studies support the effect on a user’s intention to return to a web site (Koufaris 2002), intention to use the website (Van der Heijden 2004), intention to repurchase (Bauer et al. 2006) and intention to recommend the site to others (Sit/Merrilee 2005). Kamis et al. (2008) stress the importance of the customer being adequately entertained during the customization process in order to evoke some state of flow. In their study about flow theory Nakamura/Csikszentmihalyi (2002) prove that the level of perceived entertainment has a positive effect on exposure time and motivation to concentrate.

Personalization
Personalization is the result of understanding and meeting the unique needs of the customer especially in terms of content (Holland/Baker 2001). Also termed as ‘one-to-one marketing’ it is a fundamental concept of interactive marketing and is key to customer retention and brand loyalty creation (Peppers/Rogers 1997). Generally, personalization is described as the ability to use all given information of a visitor to provide tailored content and a unique brand experience. With the use of innovative data collection and processing technologies it is easy for online brands to gain deep customer/visitor insights via the e-shop (Manyika et al. 2007).

Dholakia et al. (2000) propose that a high level of personalization give visitors the feeling of real time interaction and control. Besides the product, all marketing mix elements can be personalized, like the form of distribution, pricing or promotion. Besides product personalization (e-customization), personalization efforts in web contexts are basically content-driven and for example undertaken by using collaborative filtering or behavioral targeting. This way of personalization influences the level of trust and satisfaction with a shop, because it may serve as a signal to the customers that the shop takes care of their wellbeing. Taken one step further, personalization usually involves learning about the preferences of a customer and may eventually lead to some kind of loyalty behavior. Consequently Ball et al. (2006) study the impact of personalization on loyalty and consumer behavior. They find that communication is the main driver of perceived personalization.

Domain name
A key to create a brand is the ability to choose a name, logo, symbol, or other attribute that identifies a product and separates it from its competitors (Keller 2003). The brand name is the first and most used brand information that is communicated to the visitors. It serves as a framework for the underlying branding concept, because the brand name is the component of a brand which can be spoken or verbalized (Anderson/Bennett 1988) and which is talked about and asked for by consumers (Olins 1978). Over time, the name functions as umbrella for further brand communication activities and is hence an important driver of brand value. The selection of a brand name therefore becomes a crucial step at the early branding process (Turley/Moore 1995). This is particularly true for online environments where brand names are a significant source of information, which especially e-shoppers use as substitutes for product information (Ward/Lee 2002). In a crowded marketplace, a unique brand name becomes an important keyword in the information search process. Consistency between brand name
and domain name can therefore reinforce familiarity with the brand, and strengthen the message links between channels (Rowley 2004). Unlike other media, the user is in total control of the information search process on the web. A negative perception of the domain name can lead to dislike the brand and the decision to either stop the browsing session or to not visit the shop at all.

According to these preliminary results, our brand communication model consists of seven brand identity dimensions that are expected to be important during the early stage brand communication of e-shops. These dimensions represent the instruments through which identity is transported to the customer and by which the brand image is created during the first shop visit. Specifically, we argue that the website signals individually influence the attitude formation about an online brand, which is why they have differential effects on online purchase intentions.

3.3. Attitude theory and the attitude construct

Psychological mechanisms (perception of branding signals, information processing, etc.) as described by the behavioral approach are basically the same for every brand attitude formation process independent of the underlying context of the brand. In fact, after the first shop visit the formed attitude represents an indicator of a behind-the-scene context of the brand. In fact, after the first shop visit the formed attitude represents an indicator of a behavior approach are basically the same for every brand attitude formation process independent of the underlying context of the brand. In fact, after the first shop visit the formed attitude represents an indicator of a underlying context of the brand. In fact, after the first shop visit the formed attitude represents an indicator of a underlying context of the brand. In fact, after the first shop visit the formed attitude represents an indicator of a underlying context of the brand.

To further substantiate the attitude construct we refer to a large group of shop visitors. We select mymuesli.com, because it is a fast growing e-shop at the time of data collection, its rapid success is partly due to strong viral marketing activities among fellow students, who are expected to make up a great portion of visitors and thus cause a potential student bias in the sample.

4. Methods

As already revealed in the preceding sections there is limited prior empirical research on the impact of e-shop-based communication of online brands on a visitor’s attitude. In order to examine the effects, a combined approach of brand theory is adopted to identify and test measures of brand communication via an e-shop. This allows analyzing the relationships between the communication of brand identity dimensions and attitude formation. In the remainder of this article, we present the data collection, measurement, and analyzing methods that are utilized.

4.1. Data collection and sample

To investigate the effectiveness of communicating brand identity dimensions on attitude formation, we select a sample that reflects a setting of shop visitors who have no prior experience with the brand or the e-shop in order to evaluate the effects of the first brand impressions on attitude formation. The challenge lies in finding an e-shop that is not too new to the market to reduce the risk of a very small sample size and a shop that was not too established to reduce the risk of being already familiar to a large group of shop visitors. We select mymuesli.com, because it is a fast growing e-shop at the time of data collection and therefore neither too new nor too established in the market. However, since mymuesli.com was found by a group of students, its rapid success is partly due to the strong viral marketing activities among fellow students, who are expected to make up a great portion of visitors and thus cause a potential student bias in the sample.

The visitors have to fill out an online questionnaire over the course of three weeks. To assure that indeed only first time visitors fill out the questionnaire, we include a filter question that asks for previous experiences with the online brand and previous visits of the e-shop. At the beginning the respondents indicate some questions about general e-shopping behavior (e.g. shopping frequency, money spent, etc.), following questions about the different
brand identity dimensions their attitude towards the e-brand.

Data quality is assessed by controlling for various potential biases. Because the research design requires capturing the subjective perception of the online brand by evaluating the perceived communication of brand identity dimensions via the e-shop and subsequent attitude formation, the data is gathered from a common source. Although it is reasonable to have a single-source-design when the questions address one single data source (like attitude, experience, etc.), we follow the recommendations of Podsakoff et al. (2003) to minimize a potential common-source-bias by reducing item characteristic effects, item context effects, and measurement context effects. Moreover, we apply Harman’s post hoc one-factor test (Harrman 1967; Podsakoff et al. 2003), which did not result in a strong first factor. This indicates that common-method bias is not a serious limitation of our data.

Overall, the results show 233 completed questionnaires. Of those respondents 53.2 percent are female and 75.2 percent are between 16 and 30 years old. About 40 percent of the respondents have a university degree and 30.9 percent at least hold a high-school diploma. Almost two-thirds are working as employees whereas slightly less than a third is enrolled as full-time student. 66.1 percent of them go shopping on the web one to two times a month and 19.7 percent do it three to four times a month. Two thirds of the respondents spend less than € 100 per month for e-shopping, indicating that the majority of the purchases relate to lower priced products.

4.2. Measures

The research model consists of seven independent latent dimensions (interactivity, information quality, usability, design, entertainment, personalization, domain name) and one dependent latent attitude construct with three dimensions (affect, cognition, conation). All item scales are adapted from validated measurement instruments of previous studies. To measure attitude we refer back to the tripartite attitude theory (Katz/Statland 1959; Rosenberg/Howland 1960). According to this, attitude is conceptualized as being composed of three dimensions: affect, cognition and conation. Following this conceptualization, affect reflects the emotional evaluation of an attitude object. It is measured with the brand affect scale developed by Chaudhuri/Holbrook (2001), which we extend by the three items used by Homburg et al. (2006) to measure the perception of affective experience during the browsing session. Cognitive evaluation is measured with seven items that are adapted from Harris/Goode (2004) and extended by some traditional attitude items (e.g. Childers et al. 2001). To measure conation – the behavioral-related evaluation – we employ the five items of Song/Zinkhan’s (2008) scale of a visitor’s loyalty intentions. Based on the three dimensionality of the attitude construct, the construct is modeled as a Type II second order construct (Jarvis et al. 2003), being reflective at first order level and formative at second order level. According to the work of Reinartz et al. (2003), Yi/Davis (2003), Edwards (2001) or Agarwal/Karahanna (2000), we use a factor-based approach with composite scores to measure the second order attitude construct and to avoid multicollinearity, which is often the problem with simple factor values. As the results in Appendix I show, the attitude dimensions are not too highly correlated and there is no problem of multicollinearity.

To select appropriate measures for the independent variable (dimensions) we also refer back to previous studies in order to utilize validated measurement instruments. However, as the context to which we apply the scales is new, some scale modifications have to be made to better fit our data needs. First of all, we find a good source of scales at Srinivasan et al. (2002), who research customer loyalty in e-commerce situations. From these scales, we extract the scale for personalization (five items), usability (five items) and design (four items). Furthermore, we refer to the articles of Song/Zinkhan (2008) for measuring interactivity, Loiacono et al. (2007) and Gounaris et al. (2005) for information quality, Childers et al. (2001) for entertainment, and Keller (2003) and Kohli/LaBahn (1997) for measuring the perception of domain names. All identified dimensions are reflective in nature and operationalized as such in the model. The items are measured on five-point-Likert-scales ranging from 1 (totally disagree) to 5 (totally agree). The item wording and the related sources are depicted in Appendix II.

In a first step, the exploratory factor analysis results in the deletion of the first and second item of the information quality dimension (INF1, INF2), the fourth and sixth item of the entertainment dimension (ENT4, ENT6) and the fourth item of the personalization dimension (PER4). In addition, some of the item measures show loadings below 0.7 so that they have to be deleted, too. This is the fifth item of the interactivity dimension (INT5), the third item for usability (USA3), and the first item for the domain name dimension (DOM1). For the dependent variables the items one, four and seven of cognition (COG1, COG4, COG7) also have to be deleted because of unsatisfying loadings. All remaining items are used to measure their respective constructs in the structural equation model.

4.3. Structural Model Assessment and Data Analysis

We assess the adequacy of the measurement models through the examination of reliability and validity using the approaches of Fornell/Larcker (1981). Table 2 shows that all latent constructs are considered reliable as indicated by their Cronbach’s α, their average variance extracted (AVE) and composite reliability scores (CR) which all exceed their related threshold values (Cronbach’s 1951, Nunnally 1978, Chin 1998).

Discriminant validity is assessed both on item and construct level. First, the item cross loadings reveal that each
indicator loads below the threshold value of 0.7 but loads highest on its respective construct (Hulland 1999, Chin 1998). Second, construct discriminant validity is examined by the Fornell/Lacker (1981) criterion. It suggests comparing each constructs square root of average variance extracted (i.e. the diagonals in Table 3) with the correlations among constructs (i.e. the off-diagonal elements in Table 3).

As the results show, the diagonal elements of the matrix significantly exceed the values of the off-diagonal elements, showing that each construct shares more variance with its measures than with other constructs (Wuyts/Geyskens 2005). This provides reasonable evidence for assuming discriminant validity.

The data is analysed with a structural equation model by using the partial least squares (PLS) approach (Wold 1985, Chin 1998a). For this purpose we employ the specific software package Smart-PLS 2.0 (Ringle et al. 2005). While covariance-based methods of structural equation modelling (e.g. LISREL or AMOS) are more widespread, we decide for PLS due to its non-parametric nature, which makes it suitable for analysing relatively small datasets with non-normally distributed variables (Chin 1998a) and explorative studies where relationships between constructs are not yet sufficiently examined. PLS is a latent structural equation modelling technique that utilizes a component-based approach to estimation. By iteratively combining principle components analyses and regression, PLS explains the variance of the model’s constructs. It places minimal demands on sample size and residual distributions (Chin 1998a, 1998b; Fornell/Bookstein 1982; Lohmöller 1989) and is therefore ideal for early stages of theory development (Hulland 1999).

In general, we follow the guidelines for PLS specified in Chin (1998a) and other examples in brand research (e.g. Matzler et al. 2006).

Figure 1 illustrates a graphical representation of the PLS results. It shows the standardized path coefficients among the constructs using the path-weighting scheme, because it explicitly accounts for the directions of causal relationships developed in the conceptual model (Lohmöller 1989). Furthermore, we apply a bootstrap resampling method to determine path significance (Yung/Bentler 1996).

As a result, all brand identity dimensions have a significant effect on brand attitude. Moreover, the dimensions differentially affect attitude as the different path loadings illustrate. The results show a significant positive relationship between interactivity and attitude ($\beta = .088$, ...
4.4. Discussion

The conceptual model in this study postulates that the perception of interactivity, information quality, usability, design, entertainment, personalization, and domain name are antecedents of brand attitudes in an e-shop setting. All brand identity dimensions show significant effects on visitor attitudes, supporting the assumption that e-shops have to pursue a balanced approach to communicate the online brand by strategically aligning and integrating the brand identity dimensions to the overall brand concept. Consequently, visitor attitudes may decrease in favorability as one of the brand signals is perceived negatively and not compensated by another. This may harm the efforts of successfully communicating the online brand and creating a positive brand experience.

The three dimensions information quality, entertainment and personalization are highly significant for attitude formation of first time visitors of an e-shop. Among these three, entertainment is the only dimension having a medium effect on attitude, whereas all others have a weak effect. A higher level of perceived entertainment may increase motivation to continue the browsing session and is therefore a strong predictor of attitude and acceptance of the e-shop. Especially the use of multimedia elements contributes to a high level of entertainment and motivates visitors to explore the site and engage with content and product offers more intensively. Furthermore, they stimulate the senses and ease information processing, thereby increasing the level of flow and time spent at the shop. This leads to the fact that an e-shop should not only be organized in a purely functional manner, focusing on utilitarian values, but also in an emotional manner to support hedonistic values. Consequently, shop utility is a rather necessary than sufficient condition for positive attitude formation.

Personalization also has a positive effect on attitude and relates to the individualization of information to increase the relevance of content. First and foremost, individualized content has the purpose to enhance the visitors’ ability to satisfy their needs and to solve their task. To implement personalization, the shop must be able to gather relevant data and utilize it in a purposeful way. The more efficient this process is, the higher the probability of a visitor to stay at the shop and positively evaluate the online brand. However, the biggest challenge concerning early brand communication is that the fast and detailed gathering of information is especially difficult with first time visitors. In addition to the utilization of external customer data for personalization purposes, also internally provided data seems to have a strong effect on attitude as the significance of the information quality dimension proves. Attitude thus also heavily depends on the perception of intrinsic and contextual information quality, which is determined by the shop’s information richness – the perception of quality and quantity of information and the architecture in which the information is structured.
The results further reveal that the remaining four dimensions have a significant but rather weak impact on attitude. Surprisingly, interactivity has the weakest effect of all dimensions. Interactivity in a shop should not become an end in itself, but should increase acceptance and appreciation of the e-shop, which is not attainable with pure, aimless interactivity. If interactivity contributes to satisfy information needs it is related to the way the information is presented to the visitor, personalized and/or entertaining. The low results for the domain name dimension are also striking at first sight. Especially during early brand communication, the domain name is the key element of external communication. Since the domain name must be actively remembered before the shop is entered, it is however likely that the domain name is only used in terms of orientation and not in terms of evaluation. Once at the shop, the visitors can explore and evaluate the shop and bookmark it if they like it. Otherwise they leave and do not put much effort in remembering the name. Obviously, the domain name is not interpreted like a brand symbol, which is shown by the fact, that the perception of design in terms of brand identity has a much stronger effect on attitude than the domain name. Design elicits some general liking or disliking and is thus an important antecedent of brand acceptance and the willingness to further engage with the e-shop.

5. Conclusion, limitations and further research

On a theoretical level this study is set out to synthesize the behavior-based approach and the identity-based approach of brand theory and to substantiate the relevant constructs in order to develop a conceptual model that allows analyzing the effects of communicating brand identity dimensions in an e-shop context. By integrating the corporate and individual level of brand building we create a valuable basis for online brand research. First we identify attitude as the central concept related to the psychological processes initiated in a visitor’s mind by the perception of different brand signals, which are based on the communication of brand identity dimensions. According to tripartite attitude theory, we apply a three-dimensional conceptualization of attitude (affect, cognition, and conation). By means of a thorough literature review we also identify seven brand identity dimensions relevant for brand communication in an e-shop, namely interactivity, information quality, usability, design, entertainment, personalization, and domain name. Second, we apply our brand communication model to an e-shop setting and gather data from first time visitors of www.my-muesli.com.

The results show, that all brand identity dimensions have significant impact on a visitor’s attitude formation and are important for communicating the online brand in an e-shop. Still, the dimensions have differential effects on attitude as entertainment, personalization and information quality have stronger effects on evaluating the brand than interactivity or domain name. Especially entertainment turns out to have the strongest effect on attitude.

One of the limitations of our research relates to the fact, that we analyze attitude formation at a single point in time. In order to also account for attitude changes over time, it would be necessary to generate data at different stages of attitude formation to differentiate the effects of brand identity dimensions along the whole attitude formation process. For example, attitude formation might already begin prior to a visit of an e-shop when visitors inform themselves via social media or recommendation sites about the quality of the shop or the offered products. Also, the evaluation of the ordering process and the quality of the received products might have a significant influence on attitude formation, especially when it comes to customization as in our example. Social media and customization effects on attitude formation would thus be additional dimensions that need to be analyzed at future research. In the end, there might also exist further relevant brand identity dimensions that were not subject to research yet and might be missing in our model. Furthermore, the data is generated at only one e-shop and the results can thus not be extrapolated to explain general effects. The focus on an e-shop that is based on a customization business model does not lead to results that are representative for other shops.

Despite these limitations, our brand communication model builds the basis for further research and presents a valuable contribution to brand research. Furthermore, we are able to derive some practical implications to influence visitor attitudes by managing the communication of the online brand in an e-shop, which helps e-shops to increase their effectiveness in brand communication.

Appendix I

Corporate Behavior

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Psa</th>
<th>Csv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactivity</td>
<td>0.90</td>
<td>0.81</td>
</tr>
<tr>
<td>Usability</td>
<td>0.81</td>
<td>0.63</td>
</tr>
<tr>
<td>Entertainment</td>
<td>0.54</td>
<td>0.45</td>
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</table>

Corporate Design

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<tr>
<th>Dimension</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
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<td>1</td>
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</table>

Corporate Communication

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Psa</th>
<th>Csv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information quality</td>
<td>0.81</td>
<td>0.63</td>
</tr>
<tr>
<td>Personalization</td>
<td>0.90</td>
<td>0.63</td>
</tr>
<tr>
<td>Domain name</td>
<td>0.72</td>
<td>0.54</td>
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</table>

Attitude

<table>
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<tr>
<th>Dimension</th>
<th>biv. Correlation</th>
<th>VIF</th>
<th>KI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition</td>
<td>0.564</td>
<td>2.910</td>
<td>1.577</td>
</tr>
<tr>
<td>Affect</td>
<td>0.413</td>
<td>2.391</td>
<td>2.850</td>
</tr>
<tr>
<td>Conation</td>
<td>0.296</td>
<td>3.203</td>
<td>3.468</td>
</tr>
</tbody>
</table>
Appendix II

Interactivity (Song/Zinkhan 2008)

INT1 The website facilitates two-way communication
INT2 The website gives me the opportunity to talk back
INT3 The website facilitates concurrent communication
INT4 The website enables conversation
INT5 The website does not encourage visitors to talk back
INT6 The site is effective in gathering the visitors’ feedback

Information quality (Loiacono et al. 2007; Gounaris et al. 2005)

INF1 The information on the website is not believable
INF2 The information on the site is presented in an appropriate format
INF3 The information on the website has the right level of detail
INF4 The website does not adequately meet my information needs
INF5 The information on the website it pretty much what I need to carry out my task

Usability (Srinivasan et al. 2002)

USA1 Navigation through this website is not very intuitive
USA2 A first-time buyer can make a purchase from this website without much help
USA3 It takes a long time to shop at this web site
USA4 This website is a user-friendly site
USA5 This website is very convenient to use

Design (Srinivasan et al. 2002)

DES1 This website does not feel inviting to me
DES2 This website looks appealing to me
DES3 This website design is attractive to me
DES4 This website has a nice design

Entertainment (Childers et al. 2001)

ENT1 Shopping at this website makes me feel good
ENT2 Shopping at this website is fun for its own sake
ENT3 Shopping at this website involves me in the process
ENT4 Shopping at this website is boring
ENT5 Shopping at this website is exciting
ENT6 Shopping at this website is enjoyable

Personalization (Srinivasan et al. 2002)

PER1 The site makes purchase recommendations that match my needs
PER2 The site enables me to order products that are tailor-made for me
PER3 The advertisements/promotions that this site sends to me are tailored to my situation
PER4 This website does not make me feel that I am a unique customer
PER5 I believe that this website is customized to my needs

Domain name (Keller 2003; Kohli/LaBahn 1997)

DOM1 The (domain) name is not relevant for the product category
DOM2 The (domain) name evokes positive associations with me
DOM3 The (domain) name is unique
DOM4 The (domain) name fits to the image of the shop
Affect (Chaudhuri/Holbrook 2001; Homburg et al. 2006)

AFF1 I feel good when I use this website
AFF2 This website makes me happy
AFF3 This website gives me pleasure
AFF4 I experience elation when I use this website
AFF5 I experience delight when I use this website
AFF6 I experience joy when I use this website

Cognition (Harris/Goode 2004, Childers et al. 2001)

COG1 Using this website is preferable to other companies
COG2 This website has the best offer at the moment
COG3 The features of this website are badly suited to what I like
COG4 I prefer the service of this website to the service of competitors
COG5 I think this website bad
COG6 I think this website is boring
COG7 I think this website is useful

Conation (Song/Zinkhan 2008)

CON1 I encourage friends and relatives to do business with the website
CON2 I say positive things about the website to other people
CON3 I will do more business with the website in the next few years
CON4 I wouldn’t recommend the site to someone who seeks my advice
CON5 I consider this website to be my first choice

References


Keywords
attitude, e-shop, brand identity, brand communication, Internet, identity-based approach, behavior-based approach

Dieses Taschenbuch
enthält die wichtigsten statistischen Formeln und Tabellen für das wirtschaftswissenschaftliche Studium. Für praktische Berechnungen sind die benötigten statistischen Tabellen anschaulich abgebildet.

Anwenderwissen für Statistikprogramme
Neben allgemeinen Fragen, die bei der Auswahl eines geeigneten Statistik-Softwarepaketes zu beachten sind, werden insbesondere die Programmssysteme SAS, SPSS, STATGRAPHICS und STATISTICA kurz charakterisiert.