Gender Differences in Online Mass Customization: An Empirical Consumer Study Which Considers Gift-Giving

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Abstract
Although several studies on gender commerce were published in the last decade, showing the importance of a differentiated address of men and women in marketing, studies on gender differences in online mass customization (MC) are rare. With the help of an empirical study it was analyzed which categories of customized products are preferred by women and men and if products are bought for self-usage or for gift-giving. A quantitative study with 247 participants showed that products in the categories “food & nutrition” as well as “personalized look” are preferably bought by women, whereas products in the categories “made-to-measure-apparel” and “footwear” are predominantly purchased by men. The research showed that, in all product categories considered, women customized products for gift-giving more than men. This result follows the theoretical foundation in evolutionary psychology. In addition, in the category “personalized fashion” women bought significantly more products (i.e. printed T-shirts) to give as a gift to others than men. Based on the results of the study recommendations for adapting the customization process to the gender of the users and the objective of purchase are given.

Key words: Gender Differences, Gift Giving, Mass Customization, Online Consumer Behavior

1. INTRODUCTION
Markets and brands are more and more fragmented today, thus it becomes relevant for companies to exactly know their target groups [32]. Gender specific research has grown in the last years creating new fields of specialization, such as gender marketing [15], gender commerce [9] or gender-specific design [28]. Gender marketing includes studies and actions that adapt marketing policies depending on the targeted gender. Arsel, Eraranta and Moisander, for instance, discuss gender in the field of consumer research and develop a gendering theory [2]. Fischer identifies sex difference research, gendered experience coping research and market level gender inequality research as main directions in gender research [15]. Biological differences between men and women are responsible for their different sensory perceptions. Also, cultural and sociological factors, like different education and socialization processes, can trigger different behaviors in men and women [2]. Canning illustrates the economic relevance of addressing men and women differently in marketing and design [9]. The concept of mass customization (MC) has gained increasing relevance and awareness in the recent years [33]. It is seen today as a core strategy for successful enterprises [26]. The term refers to an offering that meets the demands of each individual customer, but can be still mass produced efficiently [35]. The core idea is to profit from the fact that most customers are different [34]. Analyzing German business plan competitions customization and personalization has been subject of nearly 50% of all submitted business models [44]. Furthermore, “Configurator Database”, the most comprehensive global MC-industry index, listed 900 product configurators in 2013 and over 1.200 in 2016 [6]. Some researchers even claim: „Mass customization is (finally) the future of products“ [19]. Despite the increasing relevance of mass customization and gender marketing studies combining both fields are...
rare. The present study aims to reduce this gap by genders (1) in the amount of online purchasing of customized products, (2) in the product categories of customized products purchased online. Several studies address the fact that users buy customized products either for themselves (=self-customization) or as gifts for others (=gift-giving) [27]. Consequently, this study investigates also (3) whether gender difference affects the overall and per category rate of customized products purchased for self and for gifts-giving. Analyzing the purchases of customized products by men and women it is expected to gain helpful indications for improving customization systems in practice.

2. GENDER DIFFERENCES IN PERCEPTION AND WEB UTILIZATION

Choice navigation refers to the guidance of users through assortment and choice options and comprises the design and usability of online configuration tools [43]. Literature gives insights into gender differences in perception and utilization of online offerings. Research shows that men and women have different brain structures influencing their behavior in offline and online situations [28]: Male brains have intensified one-sided processes, whereas women are equipped with brains utilizing both sides for thinking. Women unconsciously collect and process more information to solve a problem than men. Due to different processing capacities men focus more on main elements. It’s important for the design of websites that women have more distinctive senses, which are applied to assess quality and justify decisions. Women have a broader field of vision enabling them to recognize peripheral elements. They pay higher attention to menu bars as well as logos. Therefore, they better remember the brand. Moreover, they mind more on text elements and headlines. Advertising and product information is processed more exactly. For men, it’s mostly sufficient to depict two to three pieces of product information in list form, whereas women like to receive as many pieces of information as possible presented as personal reports, best stated by a trustful testimonial. To evaluate quality women’s need for touch is developed more strongly than men’s. An online shop optimized for women therefore should be equipped with detailed close-up illustrations (photos, pictures, drawings etc.), showing the structure and quality of the surface of products.

Barletta claims: „Men are buyers, women are shoppers.” [4, p.12] For men acquisitions are no amusement but a necessity to please a need. Men’s purchasing processes are straight forward and linear resulting in a “good solution”, whereas the women’s process is more complex trying to find the “perfect solution” [4]. The decision procedure is more iterative, criteria are developing and changing. Breaks to review all actions are very welcome. To address this behavior, it is necessary that shopping carts can be saved and stay retrievable days or weeks later. Generally, women start to roam through the assortment, become inspired, investigating whether there is difference between discover and test new things and collect a range of products. They make final purchase decisions not before having a sufficient overview of alternatives. Impulse purchases, therefore, can be found at women by the majority. This target group welcomes longer websites facilitating grubbing [4]. To gather information, men visit newsgroups and communities, read data sheets on websites or in brochures. Factual text sites, pdf-downloads with more detailed information as well as continuative hyperlinks are more important for men and should be clearly presented, best on the top of the landing page [28]. Women prefer personal relationships. They like to interchange with friends via social media or talk to an expert via chat function. In this context, women favor guidance by other women. Facts are important, but practical examples, experience reports, ratings and rankings as well as storytelling and evidence, how the product facilitates everyday life, are preferred. Offerings for women should be supported with pictures, showing the product in use by a human in real context. Women like to see realistic people, stories and situations to identify with; men concentrate on objects more strongly [4].

When discussing the differences between male and female preferences of information, men prefer simple, quick and factual information with a few features, whereas women prefer more original information with multiple features and discouse based on dialogue. Men prefer monologue and a more direct language [28]. For men, the product is more important than color. Dynamic pictures, animations and 3D graphics as well as overdrawn humor are more suitable. Women prefer static pictures as well as personal, verbosely and spontaneous language with subtle but ingenious esprit [4].

Web usability is determined by effectiveness (i.e. to reach a goal, e.g. final order of a customized shirt) and efficiency (i.e. to reach the goal within a suitable cost-benefit-ratio, e.g. completing the customization process in three steps). It is shown that process satisfaction and the willingness to purchase is raised by addressing the requirements of the specific user [23].

3. CUSTOMIZING PRODUCTS FOR ONESELF OR FOR OTHERS

Most studies in the field of mass customization discuss occurrences in the field of customizing a product for selfusage [17]. Moreau, Leff und Hercalled this approach “self-customization” and contrast it with handing over a customized product to others as a present, which is called “gift-giving” [27]. To found gender differences concerning purchase objectives findings from evolutionary psychology are applied explaining the basic meaning of gifts and exchange processes as well as the different significance of gift-giving for men and women [5], [16].

Gift-giving seems to indeed be universal, exists in all explored societies [5], [7], [11], [14], [24] and is observed amongst our primate cousins gorillas, orangutans and bonobos [28]. It thus stands as a strong
candidate for human universality and it makes scientific sense to propose a theoretical framework based on evolutionary psychology women are expected to buy more products intended for gift-giving.

4.1 Design and Procedure

Analyzing 500 online shops, Walcher and Piller [43] identified eleven relevant product categories for B2C online mass customization. In a qualitative pre-study with eight female and six male participants at Salzburg University of Applied Sciences (Austria) it was assessed if all of these categories are applicable for students. The following seven categories were identified as relevant: (1) personalized media (e.g. photobooks), (2) personalized fashion & textiles (e.g. printed T-shirts), (3) food & nutrition (e.g. customized muesli), (4) personalized look (e.g. printed mugs and skins), (5) made-to-measure (MToM) apparel (e.g. bespoke business shirts), (6) footwear (e.g. custom shoes) and (7) miscellaneous. Based on their experiences and observations the students stated that in the four remaining categories (8) jewelry & bag & accessories, (9) household & furniture, (10) sports and (11) computer & electronics only very little products are customized and bought by students. These categories were added to the category (7) miscellaneous. Based on these findings an online survey was conducted. Students of Salzburg University of Applied Sciences (Austria) and RWTH Aachen (Germany) were invited via email and social media (i.e. Facebook and Xing) to take part in the study. Altogether 247 men and women took place (60% German, 34% Austrian and 6% others). The 76% of all participants are students, 24% finished university within the last 12 months (i.e. 15% employed, 3% self-employed, 6% others). Age distribution (AGE\text{min}=17; AGE\text{max}=36; x̄\text{AGE}=23.6, σ=4.0) identifies all participants as members of Generation Y. 150 (60.7%) participants are female (x̄\text{AGE-F}=23.8, σ=3.9) and 97 (39.3%) participants are male (x̄\text{AGE-M}=23.4, σ=4.1).

For each category the participants were asked to state how often they have already (during their lifetime) bought a customized product online for themselves or for someone else for the purpose of gift-giving (scale division: 0=never, 1=once, 2=twice, 3=three times, and 4=more than 3 times, selected on a drop-down-menu). In order to assess miscellaneous products a free text area was provided asking to insert products not fitting into one of the given categories with indication of “how often” and if bought for “oneself” or for “gift-giving”.

4.2 Results

Among all 247 participants 133 (=53.8%) have already customized and purchased a product online (=MC-Users). Women are more mass customization oriented. Only 43 of all 97 participating men are MC-Users (=44.3%), whereas 90 of all 150 surveyed women have already purchased a MC-product online (=60%). Thus, about 40% more women than men are MC-Users in the study. All (male and female) MC-Users (n=133) have purchased 665 MC-products altogether. Hereof 492

4. EMPIRICAL STUDY

To analyze if men and women actually show different behavior when customizing products an empirical study based on convenience sampling of students was conducted. Aware of the uncertainties concerning reliability, validity, and generalizability [31] convenience sampling was assessed as appropriate methodological procedure to provide first statistical results founding subsequent empirical studies incorporating representative samples. First, it was analyzed if there are specific customized products, which are preferred by women and men. Next, it was examined if purchase objectives (self vs. gift) differ significantly. According to
MC-products were purchased by the 90 female MC-Users, whereas only 173 MC-products were purchased by men, which is 42% of all 665 customized products. Men customized 67 personalized media items, which is 1.6 items per men. Women customized 210 items, which is 2.3 per women. Based on this person-effort (1.6; 2.3) the men-women-ratio was calculated, showing that the male portion of personalized media items is 41% \[=(1.6/(1.6+2.3)x100\], whereas the female portion is 59% \[=(2.3/(2.3+1.6)x100\]. If these values are between 40% and 60% the interest in this category by men and women is assessed equally. Thus, it is stated that concerning the category “personalized media” no strong gender specific preferences can be detected.

The next column shows the gender-specific portion of products customized and bought for gift-giving. In the case of “personalized media” 61% of all 67 items customized by men (n=41 items) and 66% of all 210 items customized by women (n=139 items) are intended for gift giving. Finally, a Chi-Square-Test checks the significance of this distribution. In the case of “personalized media” no significant relation between gender and gift-giving-products was identified \(\chi^2(1)=0.56; p=0.46^{n.s.}\).

Table 1. Distribution of all customized products in regard to gender and objective of purchase. Significance levels: \(n.s.>0.05; *p<0.05; **p<0.01; ***p<0.001\)

<table>
<thead>
<tr>
<th>Values/ Categories</th>
<th>Men +</th>
<th>Wom</th>
<th>Men -</th>
<th>Wom</th>
<th>Men-Wom-Ratio</th>
<th>GifftMen*GiftWom-Ratio</th>
<th>Stats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pmen</td>
<td>Pwom</td>
<td>Pmen/Pwom</td>
<td>Pwom/Pmen</td>
<td>(\chi^2(1))</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>Personal.</td>
<td>277</td>
<td>67</td>
<td>1.6</td>
<td>2.3</td>
<td>41%</td>
<td>61%</td>
<td>0.56</td>
</tr>
<tr>
<td>Media</td>
<td>42%</td>
<td>67</td>
<td>2.3</td>
<td>1.6</td>
<td>59%</td>
<td>66%</td>
<td>0.56</td>
</tr>
<tr>
<td>Personal.</td>
<td>146</td>
<td>48</td>
<td>1.2</td>
<td>1.1</td>
<td>52%</td>
<td>49%</td>
<td>14.88</td>
</tr>
<tr>
<td>Fashion</td>
<td>22%</td>
<td>48</td>
<td>1.1</td>
<td>1.2</td>
<td>52%</td>
<td>29%</td>
<td>14.88</td>
</tr>
<tr>
<td>Food &amp; Nutrition</td>
<td>53</td>
<td>4</td>
<td>0.1</td>
<td>0.5</td>
<td>17%</td>
<td>83%</td>
<td>0.39</td>
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<tr>
<td>8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal.</td>
<td>113</td>
<td>21</td>
<td>0.5</td>
<td>1.0</td>
<td>33%</td>
<td>67%</td>
<td>1.70</td>
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<tr>
<td>Look</td>
<td>17%</td>
<td>21</td>
<td>1.0</td>
<td>0.5</td>
<td>57%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>MtM- Apparel</td>
<td>27</td>
<td>11</td>
<td>1.6</td>
<td>1.0</td>
<td>60%</td>
<td>49%</td>
<td>1.90</td>
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<tr>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Footwear</td>
<td>21</td>
<td>3</td>
<td>0.1</td>
<td>0.3</td>
<td>75%</td>
<td>25%</td>
<td>2.18</td>
</tr>
<tr>
<td>3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Misc.</td>
<td>28</td>
<td>9</td>
<td>0.2</td>
<td>0.3</td>
<td>50%</td>
<td>50%</td>
<td>2.18</td>
</tr>
<tr>
<td>4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>665</td>
<td>173</td>
<td>4.0</td>
<td>5.5</td>
<td>42%</td>
<td>58%</td>
<td>22.73</td>
</tr>
</tbody>
</table>

Analyzing the other categories some remarkable findings can be stated. Woman are much more interested in custom “food & nutrition” (83% women vs. 17% men) and “personalized look” (67% women vs 33% men). Made-to-measure products, such as apparel and footwear, are preferably bought by men (60% apparel, 75% footwear). The miscellaneous category by the 43 male MC-Users. Thus, each single female MC-User has customized 5,5 products, whereas each comprises fifteen different products, such as skateboard, laptop, bed, soap, perfume etc., stated only once or twice. The “men-women-ratio” in this category is 50/50.

Women showed a higher absolute percentage of bought products intended for gift-giving in all categories. This can be seen as hint that gift-giving is actually of more interest for women, which is in compliance with findings of evolutionary psychology [16]. However, only at the category “personalized fashion” a highly significant difference to men was found. 62% of all customized products by women are intended for gift-giving, whereas only 29% of all products customized by men are intended for gift-giving (\(\chi^2(1)=14.68; p=0.00^{n.s.}\)). Due to the fact that the category “personalized fashion” accounts for 22% of all purchases the portion of all products in the sample customized by women for gift-giving is about 60%, whereas 60% of all products customized and bought by men are intended for self-usage.

5. DISCUSSION AND CONCLUSION

The present empirical study found that the behavior of customers in an online mass customization setting is influenced by gender. Women prefer special categories, such as “food & nutrition” and “personalized look”, whereas men prefer made-to-measure products, such as apparel and footwear. The theoretically deduced expected higher portion of products customized by women for gift-giving was only found at “personalized fashion”. Nevertheless, the analysis shows the relevance of the mass customization industry as provider for presents and gifts. The reason why women’s portion of gift-giving differs significantly only in one category can be explained by the likewise high number of gifts customized by men.

As mentioned, convenience sampling with students bears uncertainties concerning reliability, validity, and generalizability. For that reason, all presented findings have to be taken into reflective consideration. Researchers conducting a subsequent study are advised to recheck the results with the help of representative samples. In general, the consumption behavior of students is limited due to financial restrictions. It is possible that the findings of this study are not only confirmed but topped in terms of clarity and significance by a representative study. More research and experiments have to be done to reliably assess the accurate preferences of the different genders in mass customization.

The growing number in the field of gender marketing shows the increasing cognition of gender differences and their economic potential. Online offerings are perceived and utilized differently by men and women. It is astonishing that so far not many appreciable e-commerce sites with gender adaptation exist. To provide a consistent appearance to the customer customization sites should not only offer adaptable products. The configuration process itself has to be adapted to the individual user [40], [41]. Within the
configuration process it would be easy to determine the gender with a simple question in an early step to subsequently offer a personalized site. Likewise, an adaption of the configuration system to the purchase objective of gift-giving appears beneficial. Moreau, Leff and Herd, for example, suggest asking the customers at the very beginning of the customization process, whether the product is intended for oneself or as a gift to adapt the configuration process accordingly [27]. To reduce uncertainty and anxiety they recommend congratulating the creating gift giver at the end of the process for the design, reassuring that quality control has reviewed the product and informing that the firm’s experts are confident that the product will be well received. The firm could also provide a quality guaranteeing a cost-free replacement in the case of dissatisfaction. This option will help saving giver’s face in a gifting situation.

Moreau, Leff and Herd moreover state that the customization process quite often is kind of exhausting for the designer [27]. To avoid frustration and break-offs and to raise the willingness to purchase, they recommend to appreciate the customer’s effort and regularly give reminders that everything is done on behalf of the recipient. One way to accomplish that is to make the name of the recipient salient at each decision point. At the beginning the giver can be asked to provide the name of the intended recipient. Moreover, the effort of the giver can be actively signaled by adding a custom label on the product, noting that the product was designed by the giver specifically with the recipient in mind; e.g. “Designed by Jane especially for Susan on her 21st Birthday” [27, p.131]. Developments in information and communication technologies also head for improved targeting and personalization [18]. A basic principle of the emerging (semantic) web 3.0 will be, that users are recognized and web content will be adapted to demographics (e.g. gender), behavior, location and special situations. Dynamic website personalization [30] can be seen as crucial element of future mass customization systems 6. REFERENCES


Rodne razlike u onlajn kastomizovanoj industrijskoj proizvodnji: Empirijsko istraživanje korisnika koje razmatra darivanje

Dominik Walcher, Michael Leube, Paul Blazek


Apstrakt

Iako su u poslednjoj deceniji objavljivana istraživanja o uticaju rodnih razlika u procesu potrošnje koja ukazuju na važnost različitog pristupa muškarcima i ženama u marketingu, retka su ona koja se bave rodnim razlikama u onlajn kastomizovanoj industrijskoj proizvodnji. Pomoću empirijskog istraživanja analizirane su kategorije kastomizovanih proizvoda koje preferiraju muškarci i žene, kao i da li su kupljeni proizvodi namenjeni za korišćenje ili darivanje. Kvantitativno istraživanje koje je obuhvatilo 247 učesnika pokazalo je da proizvode iz kategorije “ishrana i dijeta” i “personalizovan izgled” preferiraju žene, dok proizvode iz kategorije “garderoba po meri” i “obuća” uglavnom kupuju muškarci. Istraživanje je pokazalo da žene kastomizuju proizvode za darivanje više nego muškarci u svim kategorijama proizvoda koje su uzete u obzir. Ovi rezultati su u skladu sa teorijskim osnovama evolucione psihologije. Dodatno, u kategoriji “modna personalizacija” žene su kupovale značajno veći broj proizvoda (npr. štampane majice) za darivanje od muškaraca. Na osnovu rezultata istraživanja date su preporuke za prilagođavanje procesa kastomizacije proizvoda prema polu korisnika i prema ciljevima kupovine.

Ključne reči: Rodne razlike, darivanje, kastomizovana industrijska proizvodnja, ponašanje onlajn potrošača