

Structured Abstract

Needs/Goals: Prior studies in online mass customization have addressed the challenge that customers often require positive reinforcement before they finalize a preliminary design and purchase the product (Piller et al. 2005; Delleart & Dabholkar, 2009; Franke et al., 2010), with various mechanisms being proposed (Turner et al., 2012). Yet an understanding of how these mechanisms are facilitated from an interactive media perspective is lacking. Thus the goal of this study is to explore mechanisms of interactive media, which facilitate positive reinforcement in customer co-design.

Theoretical Underpinning: Besides the feedback a customer may perceive through the online toolkit, i.e. via trial & error, Turner et al. (2012) identify two major sources for social interaction in online customer co-design. The first source is interaction with peers and users from online communities (Franke et al. 2008). The second source is the interaction with salespersons from the mass customization business (Dellaert & Dabolkar, 2009). A remarkable difference in online media for interpersonal communication is the level of richness they provide (Palmer, 2002). Thus the theory of media richness is introduced to characterize the different levels of social interaction.

Method/Data: The study follows a multiple-holistic case study approach. 115 online mass customization cases were selected for a large-scale, cross-case analysis of their respective interfaces for online co-design. Data were collected through intensive screening and testing of co-design interfaces by multiple investigators. Subsequently, a systematic identification of underlying mechanisms and dominant approaches across the cases was performed.

Findings: Online media for customer co-design may be characterized in two different ways. The first, *shareability of design*, refers to the extent to which the preliminary design itself is shareable with other individuals e.g. friends, design professionals or salespersons. The second, *interpersonal presence*, refers to the extent to which the customer perceives the co-design partner to be present. The analysis reveals two dominant approaches, i.e. social and live customer co-design.

Conclusion/Future Research: Future research needs to investigate the impact of these approaches on customers' perceived value in order to determine the theoretical and managerial implications for mass customization businesses.

1 Needs and Goals¹⁶⁸

*“True interactivity is not about clicking on icons or downloading file;
it's about encouraging communication.”*

– Edwin Schlossberg¹⁶⁹

Creating attractive processes for customer co-design is key to successful online mass customization businesses.¹⁷⁰ One specific challenge for businesses is to facilitate the appropriate level of social interaction to each single customer, as outlined in part III. This is necessary because social interaction is expected to yield positive reinforcement, which in turn influences customers' perceived value and thus their willingness to finalize their design.¹⁷¹

“Customers often need to be able to save their configurations, discuss them with others, share them with others, and let other people provide input or changes, before they finalize their designs.”¹⁷²

Besides other aspects, the level of social interaction is dependent upon the characteristics of the online medium applied for the co-design process. Within traditional customization settings, where customers co-design products inside physical shops, social interaction is realized through non-mediated, direct, face-to-face contact with sales personnel and friends or close ones.¹⁷³ However, running a physical shop and employing sales people entails comparably high operational costs. Thus many mass customizers nowadays decide to operate their businesses in the online environment, i.e. by relying on electronic commerce.¹⁷⁴ Current market

¹⁶⁸ An earlier version of part IV was submitted to the 7th research seminar on innovation and value creation as Thallmaier (2012). The study reported in part IV is currently further developed in collaboration with Dr. Hagen Habicht and Prof. Dr. Kathrin M. Möslein for submission as a journal paper. Key results of the study are also summarized as a transfer report for the German brochure *Produktindividualisierung im Einzelhandel*. This transfer report is co-authored by Dr. Hagen Habicht and Prof. Dr. Kathrin M. Möslein as Thallmaier, Habicht and Möslein (2014).

¹⁶⁹ Edwin Schlossberg is an American founder, designer and author of the book “Interactive Excellence: Defining and Developing New Standards for the 21st Century”; Schlossberg (1998)

¹⁷⁰ Piller and Berger (2003)

¹⁷¹ Yoo, Lee and Park (2010)

¹⁷² Seybold (2006)

¹⁷³ Goswami, Tan and Teo (2007); Monsuwé, Dellaert and Ruyter (2004)

¹⁷⁴ Walcher and Piller (2012)

data undoubtedly reveals the relevance of online interaction for commerce, regardless of where the customer fulfills the final transaction of purchase. However, it is also recognized that the online environment to date has exhibited a comparably deficient interactive medium for customer co-design.¹⁷⁵ This fact is mainly attributed to the lack of rich and real-time individual interaction, as customers are frequently prompted to engage in an isolated communication with their own electronic device and the website of the mass customization provider.¹⁷⁶

Hence in a typical online customization context, interaction with a human, i.e. sales person or friend, is fully replaced with a configuration toolkit for self-design and additional help information, e.g. FAQs.¹⁷⁷ Customers who exhibit a relatively low *need for interaction* will potentially seek such interfaces and select the interfaces for their purchase decision according to usefulness, ease of use and enjoyment.¹⁷⁸ However, customers who exhibit higher levels of *need for interaction* will potentially avoid such interfaces or abandon their design activities¹⁷⁹ and seek out alternative options.¹⁸⁰ Hence mass customizers relying on online interfaces risk losing potential customers if they neglect the latter kind. To overcome this risk, mass customizers may develop and provide interactive media to compensate for the lack of social interaction via face-to-face contact, because:

“The purpose of facilitating interactive features on the e-commerce website is to increase consumers’ perceived consumption value and, in turn, to satisfy and retain them.”¹⁸¹

However, the research conducted to date has lacked a clear understanding of interactive media in online customer co-design for three reasons. First, studies on co-design in mass customization have merely focused on the isolated interaction with the toolkit itself, i.e. usability and realistic visualizations, to overcome potential burdens such as customers’ perceived uncertainty or perceived complexity. These research and development efforts are frequently pursuing the ideal typical toolkit, which fosters customers to engage in a self-design process while neglecting the role of human support.¹⁸²

¹⁷⁵ Yoo et al. (2010)

¹⁷⁶ Franke et al. (2008)

¹⁷⁷ Monsuwé et al. (2004)

¹⁷⁸ Monsuwé et al. (2004)

¹⁷⁹ Piller, Vossen and Ihl (2012)

¹⁸⁰ Dabholkar and Bagozzi (2002)

¹⁸¹ Yoo et al. (2010, p. 89)

¹⁸² Gerber and Martin (2012)

*“Therefore, additional research effort is needed to analyze and evaluate collaborative online shopping technologies theoretically and empirically to advance the IS knowledge concerning this important and expanding buying channel”*¹⁸³

Second, to date the online channel has frequently been interpreted as a valuable opportunity for businesses to reduce costs by turning traditional services into self-service.¹⁸⁴ Hence research often purposefully focuses on automating most customer processes, which typically include

*“...automated catalogs, automated negotiation, automated purchasing support, automated customer query answering services, and comparison shopping.”*¹⁸⁵

Third, previous research into customer co-design has focused on the general idea of supporting social interaction, e.g. through concepts such as *collaborative customer co-design*¹⁸⁶, *social toolkits*¹⁸⁷ or *sales people interaction*¹⁸⁸. However, these studies have stayed on a rather abstract level (e.g. simply adding social media buttons) and have not investigated the online co-design processes or the features of interactive media on a more fine-grained level. To bridge this gap in research, this study answers the following research questions:

RQ1: What mechanisms of interactive media facilitate positive reinforcement through human interaction in online customer co-design?

RQ2: What are the dominant approaches for facilitating positive reinforcement through online media in customer co-design?

To answer both research questions, the remainder of the study is structured the following way. *Chapter 2* presents further theoretical underpinnings from literature on the feedback mechanisms and introduces the link to media richness theory. The subsequent *chapter 3* presents the method and data used to carry out the large-scale cross-case analysis. *Chapter 4* focuses on the findings of the analysis, presents the identified types of online customer co-design systems and derives the appropriate design parameters. Finally, *chapter 5* summarizes the study, discusses its limitations and presents avenues for further research.

¹⁸³ Zhu, Benbasat and Jiang (2010, p. 873)

¹⁸⁴ Moon, Lee and Lee (2000)

¹⁸⁵ Moon et al. (2000, p. 213)

¹⁸⁶ Piller et al. (2005)

¹⁸⁷ Piller et al. (2012)

¹⁸⁸ Dellaert and Dabholkar (2009)