Mass customization's online sales configurator capabilities and purchase intention: the roles of psychological empowerment and ownership

Marwa Meddeb
aix marseille university
Jean-louis Moulins
Aix Marseille Université

Cite as:
Meddeb Marwa, Moulins Jean-louis (2022), Mass customization's online sales configurator capabilities and purchase intention: the roles of psychological empowerment and ownership. *Proceedings of the European Marketing Academy*, 51st, (107316)

Paper from the 51st Annual EMAC Conference, Budapest, May 24-27, 2022

Mass customization's online sales configurator capabilities and purchase intention: the roles of psychological empowerment and ownership

Abstract: This research studies the influence of sales configurator capabilities on psychological empowerment and purchase intention in the context of online mass customization. After having customized video game controllers, 263 individuals answered the survey about dimensions of configurator capabilities and psychological empowerment. The results show that, in general, the perceived usefulness of these tools increases the consumer's perception of power. However, the dimension "focused navigation capability" does not seem to influence psychological empowerment. Acquisition of power and mastery seems to go hand in hand. In order to have a perception of power, individuals do not wish to be very brand-oriented in their process of selecting a customizable product. Furthermore, psychological empowerment does not influence purchase intention there is indeed an indirect effect through the mediation of psychological ownership. Our research contributes to the literature on psychological empowerment by highlighting the dimensions of the e-configurator most likely to increase the perception of power, the psychological ownership and finally the purchase intention.

Key words: *online sales configurator capabilities (OSCCs), mass customization (MC), psychological empowerment and ownership*

Track: *consumer behavior*

1. Introduction

Although online mass customization (MC) is increasing consumer's perceived value, the complexity of the purchase and the co-creation between the customer and the company remains important for the consumer. According to Kaplan et Haenlein (2006 p.177) MC is defined as "a strategy that creates value by some form of company–customer interaction at the design stage of the operations level to create customized products, following a hybrid strategy combining cost leadership and differentiation".

Dhar (1997) and Huffman and Kahn (1998) note that too many options infuriate consumers. These authors affirm the fact that to increase the consumer's satisfaction in a mass customization experience, a firm must control the way the information is presented and the input provided by consumers in data gathering. Al Shibly, Aisebert and Pires (2015) add that information and communication flows affect the way consumers perceive power in the mass customization process. That's why managers have to optimize online sales configurator capabilities (OSCCs) which accompany consumers throughout the MC process by providing sufficient information to reduce complexity. These toolkits (OSCC) are defined by Von Hippel (2001, p.2) as a technology « giving users real freedom to innovate, allowing them to develop their custom product via iterative trial-and-error». In MC process, toolkits are presented as steps, tabs or options on the brand's website allowing client to customize a product according to his/her preferences and in good conditions. This computer aided design (CAD) leads to increase the consumer's feeling of power and increase perceived value, purchase intention and interest in MC. To our knowledge, the few studies that have focused on the place of OSCC in a MC program, have not considered this concept as an aggregated variable. However, several researchers highlight the importance of being aware of these toolkits. For example, Turner, merle and Gotteland (2020) bring forward the importance of OSCC to have a successful MC program. In addition, Fettermann, Echeveste and Tortorella (2017) appeal to determine the added value for consumer thanks to these toolkits.

Furthermore, MC is considered as a strategy allowing firms to delegate power to the consumer. This delegation of power is addressed in marketing by the term « empowerment » as a process. The large majority of studies have focused on empowerment as a strategy initiated by firms or consumers. Only a few studies considered the concept as a state of mind and approached it by a term "psychological empowerment". It is defined by Ambroise,

Bérard, Prim-Allaz and Garraud (2015 p.25) as “motivational feelings of “power” and “mastery” that individuals feel towards things which involved them”. It is therefore a consumer’s perception of power to act, to choose and to purchase. We suppose in our research that OSCCs increase the perception of power in a MC experience. Some researchers noted the importance of guiding consumers and helping them in a co-creation process in order to provide them with a feeling of power and autonomy. For example, in the pioneer article on empowerment in marketing, Wathieu and al. (2002) highlight the importance of giving consumers « check points » to help them in the selection process in order to make them feeling empowered. Given that a relationship between OSCC and psychological empowerment exists, it is important to empirically asses this link. Therefore, we outline below the question of our present research:

What is the influence of online sales configurator capabilities on purchase intention through psychological empowerment and psychological ownership in a mass customization experience?

2. Conceptual Framework

Online MC sales configurator capabilities are presented as « knowledge-based software » “that support customers, or salespeople interacting with customers, in completely and correctly specifying a product solution within a company’s product offer” (Trentin, Perin and Forza, 2014). These authors and Sandrin, Trentin, grosso and Forza (2017) showed that OSCCs increase product value and experiential value of co-design (Merle, Chandon and Roux, 2008). “Trial and error” process via MC toolkits increase consumer’s perception of power and autonomy (Novak and Hoffman, 1997 ; Kamis, Koufaris and Stern, 2008).

Furthermore, Füller, Mühlbacher, Matzler and Jawecki (2009) showed that “Before consumers can make competent contributions, they need a sound understanding of the innovation”. Thus, such toolkits increase perceived competence and the feeling of having an active participation. These authors showed that “the stronger consumers’ perception of support offered by the provided tool to master a new product development task, the more the tool will contribute to the consumers’ perceived empowerment”. We suppose that this observation is valid in a MC context. Businesses contribute to consumers increased freedom by providing them necessary toolkits in order to acquire knowledge, integrate and develop

resources in order to perceive autonomy and power (Banoun, Hamdi-Kidar and Salgado, 2017).

According to Portes (2018), the fact that people better appropriate web toolkits results from a learning process towards digital experience. Learning is presented here as a process allowing procurement of knowledge and know-how which generates new competences. The experiential learning theory of David Kolb (1984) which is taken from educational sciences stipulates that the experience is the source of learning. This experience is characterized by an increase of knowledge. During a mass customization experience, OSCCs improve the learning process (Sandrin and al 2017; Kolb, 1984). These tools have to be presented as a user-friendly interface allowing people to harness their knowledge in order to obtain a desired product quickly and easily by doing several trial and error processes. Therefore, based on the experiential learning theory, we hypothesize the link between OSCC and psychological empowerment. During a MC experience and through optimal use of MC toolkits, consumers spend a learning process allowing them to acquire knowledge in order to have power. Therefore, we hypothesize:

H1: online sales configurator capabilities have a positive effect on psychological empowerment.

Furthermore, researchers showed in certain context that the perception of power leads to a higher purchase intention by consumers. For example, Fuchs, Prandelli and Shreier (2010) reported that empowered participants in the new product selection process are willing to show stronger demand for the final products than nonempowered customers. These researchers showed also that this relationship could be mediated by psychological ownership. These findings are specific to « empowerment to select » context. So, how about a mass customization context? We hypothesize therefore :

H2: psychological empowerment has a direct effect on purchase intention.

Franke Schreier and Kaiser (2010) showed that co-creating a product leads to a perceived ownership value by consumers. Those who have created a product show appropriation of the product more that those who simply purchase it. Psychological ownership is defined by Van Dyne and Pierce (2004) as “the state in which an individual feels that an object is experienced possessively”. Pruche (2015) got interested on decision’s psychological ownership and showed that this variable mediates the relationship between psychological

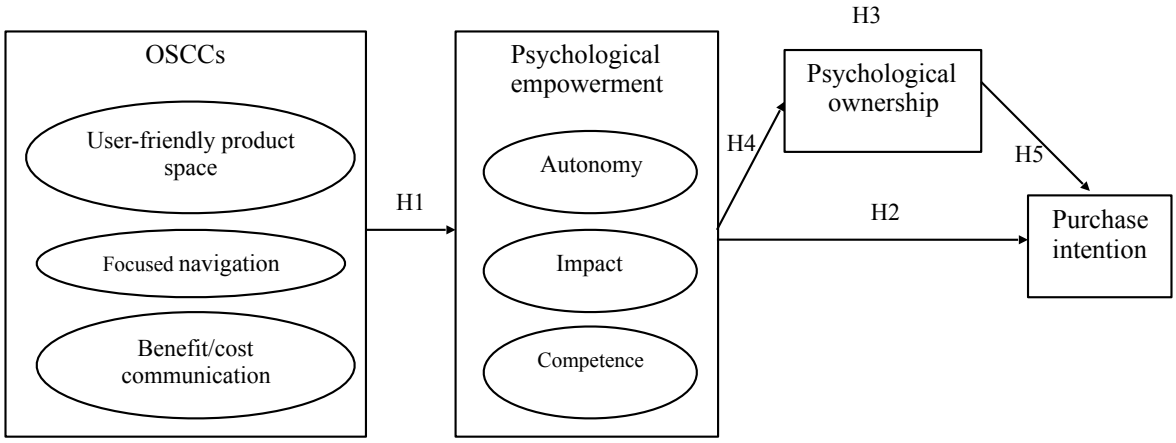
empowerment and satisfaction towards the purchase decision. In a MC context, we suppose that psychological ownership is related to the product and not to the decision. In order to assess the mediation effect of psychological ownership, we have to test first the direct effect of psychological empowerment on psychological ownership and then the effect of psychological ownership on purchase intention. According to Fuchs and al. (2010), empowered customers experience higher levels of psychological ownership of the final products than nonempowered customers. They added that the relationship between empowerment and product demand is mediated by psychological ownership.

H3: psychological ownership mediates the relationship between psychological empowerment and purchase intention.

H4: psychological empowerment has a positive effect on psychological ownership.

H5: psychological ownership has a positive effect on purchase intention.

Figure 1. Research model



3. Method

Studies in marketing have been interested on public consumer product emphasizing only individual characteristics. These public products belong generally to apparel industry (eg. t-shirt, scarf, sneakers). To date, no studies in MC have focused on mass customization valuation for private consumer product. Therefore, we have chosen a mass customization program of video game controllers as a fieldwork. In fact, contrary to sneakers or apparel, video game controller's users show rarely their product to their entourage. Geeks and players in general use to play the game console at home in front of their screen. Interaction with

others is most of the time virtual. We consider by the way that it is a category of product belonging to private consumer product.

Two data collections have been conducted in two steps. The first one consisted of 104 individuals concerns the construction and the validation of measurement scales. The second one consisted of 263 respondents concerns the assessment of the conceptual model. The participants were asked to customize a video game controller from XboX designLab. Then, they were solicited to fill out a survey. In the Consortium Euroshoe 2002 authors describe the core market of customizable product as young people looking for exclusivity, co-creation, and are computer competent. All studies in mass customization have been conducted with young people. That's why we asked people aged 20 to 30. Data gathering was conducted in April 2020 by emailing with students. All items were rated on a six-point likert scale which was confirmed many times in literature (Chang, 1994).To assess measurement quality we conducted exploratory factor analysis (EFA) on SPSS and confirmatory factor analysis (CFA) on AMOS. To assess the research hypotheses, smart PLS 3 was used.

4. Results

4.1. Measurement quality

We tested the four dimensions of psychological empowerment identified by Spreitzer (1995) in the management context and confirmed by Pruche (2015) and Thion (2018) in the marketing field in a French context. The dimensions are competence, autonomy, impact and meaning. EFA showed that "meaning" is not significant. Results showed a satisfactory fit of the model after deleting this dimension (RMSEA = 0,033; GFI = 0,97; AGFI = 0,93).

The measurement scale of OSCC is based on the scales developed by Trentin and al. (2013) and Füller and al. (2009). Certain items were purified because they presented intercorrelations with other items from a same dimension. The cues of measurement scale model were acceptable after deleting these items (RMSEA = 0,033; GFI = 0,97; AGFI = 0,95). Final measurement scales are presented in apprendix.

These two variables (psychological empowerment and OSCC) are considered here as an aggregated variables (a second order factor). In fact, the CFA shows cues of T, AIC, BCC and BIC with very satisfactory values respectively: 0.99 (>0.8), 59.75, 61.11 and 127.63 (>10) for

OSCC and 0.90, 61.12, 62.18 and 121.83 for psychological empowerment. A second order model is better than first order model.

The measurement scale of psychological ownership is adapted from Fuchs and al. (2010). “Although I do not legally own this joystick yet, I have the feeling that it is ‘my’ joystick”; “The selected joystick incorporate a part of myself”; “I feel that this product belong to me”; “I feel connected to this joystick”; “I feel a strong sense of closeness with this product”; and “It is difficult for me to think of this joystick as mine” (reversed); $\alpha = .95$ after purification of the reversed item. The measurement scale of purchase intention is adapted from Sweeney and Soutar (1991). “The likelihood of purchasing this product is very high”, “If I were going to buy this product, I would consider buying this model at the price shown” and “My willingness to buy this product is very high”; $\alpha = .84$.

4.2. Research model validation

Results show that H1, H3, H4 and H5 are supported and H2 is rejected.

Online sales configurator capabilities have a positive direct effect on psychological empowerment as predicted by hypotheses 1 ($p<0.001$). Psychological empowerment does not influence purchase intention rejecting hypotheses 2. The influence is maybe indirect, as we will see in the next hypotheses.

Mediation effect was evaluated by performing Hayes (2015) test. Psychological empowerment has a direct significatif and positif impact on psychological ownership (coeff = 0,5122 ; s.e = 0,0532 ; p = 0,000) showing that individuals perceiving a stronger power appropriate easily the customized product. This result supports hypothesis 3. However psychological empowerment does not influence directly purchase intention (coeff = -0,0370 ; s.e. = 0,634 ; p = 0,5605). There is indeed an indirect effect through the mediation of psychological ownership (coeff = 0,2952) [0,2132 ; 0,3778].

5. Conclusion

Results allow us to answer the question of our research by confirming that OSCCs increase psychological empowerment. The relationship between these two variables is significant and positive showing that people perceiving a higher capability of sales configurator perceive more power than other people do. The support offered by the provided tool increases the perception of power. This result is coherent with the research of Conger and Kanungo (1988),

in the management context (originel context of empowerment). These authors showed that the lack of support provided by an employer reduces the perceived power by employees. Our results substantiate Füller and al. (2009) findings. They showed that experienced tool support in a new product development increases psychological empowerment. Furthermore, the dimension of OSSCs which is "focused navigation" does not have an influence on perceived power. This result does not substantiate Lemoine (2008) findings. This researcher has shown that web sites atmosphere may lead to different perception of power. As a consequence, firms must give sufficient liberty to its customers to make them feel empowered, but not a lot to not make them feel "mass confused" as noted by Joseph Pine (1993).

Finally, even if consumers perceive power thanks to optimum configurator capabilities, they do not immediately purchase the product customized. However, Fuchs and al. (2010) showed that perceived power increases purchase intention of t-shirts. Pruche (2015) has shown the same finding. This controversy with our result could be explained by the fact that the category of product considered in our study is different from the other studies. For example, contrary to joystick, purchasing a t-shirt does not require buyer's involvement and individuals use to take decisions more quickly. Familiarity, customer loyalty or purchasing frequency are other variables which can explain our result. For example, in the research of Fuchs (2015), respondents were loyal customer and familiar with the travel agency considered in the study (Promo vacances). They will indeed have a higher purchase intention than other customers. We showed through our study that people need to appropriate the product before purchasing it. Managers must focus on psychological ownership to encourage customers buying co-created product.

6. References

Al Shibly, H., Aisbett, J., & Pires, G. (2015). A characterisation of consumer empowerment drawn from three views of power. *In Revolution in Marketing: Market Driving Changes* (pp. 208-213). Springer, Cham.

Ambroise, L., Bérard, C., Prim-Allaz, I., Séville, M., et Garraud, O. (2015). Proposition d'un modèle relationnel de l'intention de donner son sang : les effets de l'empowerment psychologique et de l'engagement. *Journal de Gestion et d'Economie Médicales*, 33(1), 23-44 (in french).

Banoun, A., Hamdi-Kidar, L., & Salgado, S. (2017). Explorer l'influence des récompenses sur la prise de pouvoir des participants à un challenge. Actes du 33 Congrès de *l'Association Française du Marketing*, Tours (in French).

Chang, L. (1994). A psychometric evaluation of 4-point and 6-point Likert-type scales in

relation to reliability and validity. *Applied Psychological Measurement*, 18(3), 205-215.

Conger, J. A., & Kanungo, R. N. (1988). The empowerment process: Integrating theory and practice. *Academy of Management Review*, 13(3), 471-482.

Dhar, R. (1997). Consumer preference for a no-choice option. *Journal of Consumer Research*, 24(2), 215-231.

Fettermann, D. C., Echeveste, M. E. S., & Tortorella, G. L. (2017). The benchmarking of the use of toolkit for mass customization in the automobile industry. *Benchmarking: An International Journal*.

Franke, N., Schreier, M., & Kaiser, U. (2010). The "I designed it myself" effect in mass customization. Management science, 56(1), 125-140.

Fuchs, C., Prandelli, E., & Schreier, M. (2010). The psychological effects of empowerment strategies on consumers' product demand. *Journal of marketing*, 74(1), 65-79.

Füller, J., Mühlbacher, H., Matzler, K.,& Jawecki, G. (2009). Consumer Empowerment through internet-based co-creation. *Journal of Management Information Systems*, 26(3), 71–102.

Hayes, A. F. (2015). An index and test of linear moderated mediation. *Multivariate behavioral research*, 50(1), 1-22.

Huffman, C., & Kahn, B. E. (1998). Variety for sale: mass customization or mass confusion? *Journal of Retailing*, 74(4), 491-513.

Kamis, A., Koufaris, M., & Stern, T. (2008). Using an attribute-based decision support sys- tem for user-customized products online: An experimental investigation. *MIS quarterly*, 159- 177.

Kaplan, A. M., & Haenlein, M. (2006). Toward a parsimonious definition of traditional and electronic mass customization. *Journal of Product Innovation Management*, 23(2), 168–182.

Kolb, D. A. (1984). The process of experiential learning. Experiential learning: Experience as the source of learning and development, 20-38.

Lemoine, J. F. (2008). Atmosphère des sites Web marchands et réactions des internautes. *Revue Française du Marketing*, (217) (in French).

Merle, A., Chandon, J. L., & Roux, E. (2008). Comprendre la valeur perçue de la customization de masse. Une distinction entre la valeur du produit et la valeur de l'expérience de co- design. *Recherche et Applications en Marketing* (French Edition), 23(3), 27-50.

Novak, T. P., & Hoffman, D. L. (1997). Measuring the flow experience among web users. *Interval Research Corporation*, 31(1), 1-35.

Pine, B. J. (1993). Mass customization (Vol. 17). Boston: Harvard business school press.

Portes, A. (2018). La transparence numérique : Rôle du client et conséquences sur la relation à la marque. (thèse de doctorat, université de Montpellier) (in French).

Pruche, L. (2015). L'empowerment psychologique du consommateur : Contexte, mécanismes et conséquences (Doctoral dissertation, Toulouse 1) (in french).

Sandrin, E., Trentin, A., Grosso, C., & Forza, C. (2017). Enhancing the consumer-perceived benefits of a mass-customized product through its online sales configurator: An empirical examination. *Industrial Management & Data Systems*, 117(6), 1295–1315.

Spreitzer, G. M. (1995). An empirical test of a comprehensive model of intrapersonal empowerment in the workplace. *American journal of Community Psychology*, 23(5), 601–629.

Thion, S. (2018). Engagement du consommateur dans la cocréation de valeur : rôle des motivations et conséquences sur l'empowerment psychologique, la satisfaction et le bien-être subjectif (Doctoral dissertation, Toulouse 1).

Trentin, A., Perin, E., & Forza, C. (2013). Sales configurator capabilities to avoid the product variety paradox: Construct development and validation. *Computers in industry*, 64(4), 436–447.

Trentin, A., Perin, E., & Forza, C. (2014). Increasing the consumer-perceived benefits of a mass-customization experience through sales-configurator capabilities. *Computers in Industry*, 65(4), 693–705.7

Turner, F., Merle, A., & Gotteland, D. (2020). Enhancing consumer value of the co-design experience in mass customization. *Journal of Business Research*, *117*, 473-483.

Van Dyne, L., & Pierce, J. L. (2004). Psychological ownership and feelings of possession: Three field studies predicting employee attitudes and organizational citizenship behavior. Journal of Organizational Behavior: *The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 25(4), 439-459.

Wathieu, L., Brenner, L., Carmon, Z., Chattopadhyay, A., Wertenbroch, K., Drolet, A., ... & Wu, G. (2002). Consumer control and empowerment: a primer. *Marketing Letters*, *13*(3), 297-305.

Apprendix

Variables	Dimensions	Items
OSCCs	User-friendly product space description	- The product features are presented adequately for the user who just wants to find out about them, as well as for the user who wants to go into specific details. - The choice options are adequately presented for both the expert and inexpert user of the product - The space description allow users to be reassured toward the product
	Focused navigation	- The system enabled me to eliminate quickly from further consideration everything that was not interesting to me at all. - The system immediately led me to what was more interesting to me. - This system leads quickly the user to those solutions that best meet his/her requirements.
	Benefit/cost communication	- Thanks to this system, I understood how the various choice options influence the value that this product has for me. -This system made me exactly understand what value the product I was configuring had for me.
Psychological empowerment	Autonomy	- I have significant autonomy in determining how I customize my product. - I can decide on my own how to go about customizing my product. - I have considerable opportunity for independence and freedom in how I customize my product.
	Impact	- My impact on the customization of the product is large. - I have significant influence over the customization of the product.
	competence	- I am confident about my ability to customize a product. - I am self-assured about my capabilities to perform my work activities.