In-store digital tools use and shopping well-being

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Abstract: The literature on in-store technology use has not sufficiently explored its potential impact on shopping well-being and the underlying mechanisms driving this effect. To fill this gap, we mobilize the self-determination theory and shopping value literature to investigate how in-store technology use affects customer well-being across different dimensions of shopping value and to investigate whether perceived autonomy and competence enhance these effects and shopping well-being. Two field studies show that using a digital tool increases the hedonic value, thereby increasing shopping well-being. This use does not increase consumers' perception of the utilitarian value which has no impact on shopping well-being. However, the projection in the use of digital tools makes the effect of utilitarian value on well-being significant. In both studies, shopping well-being is directly enhanced by perceptions of competence and autonomy with regard to digital tools use.

Keywords: digital tool, shopping well-being, shopping value, competence, autonomy

A variety of technologies are used by retailers in their stores, such as smart screens, self-checkout counters, apps and robots (Grewal et al., 2023). Retailers are also re-considering their offers, processes and interfaces to enhance value through multiples interactions, similar to the digitalized interactive platform exemplified by the Apple store (Roy et al., 2023). These technologies influence the shopper experience (Lao et al. 2021, Flacandji and Vlad, 2022) and make retail environments increasingly sophisticated, with shopping frequently blurring transactional, social and leisure boundaries for the consumer (Maggioni et al., 2019). Value creation and customer experience are important outcomes but another strategic retail outcome that must be monitored in an increasingly competitive environment is the shoppers' well-being (El-Hedhli et al., 2016). Kumar et al. (2020) advocate for further research on the impact of new technologies on well-being and psychological needs like autonomy. Using retail technologies while shopping can fulfill psychological needs for autonomy and competence (Leung and Matanda, 2013), potentially leading to an increase in shopping well-being. Few studies have explored the potential of retail experiences to improve customer well-being (Ali *et al.,* 2021; El Hedhli *et al.,* 2013, 2016; Gardiazabal *et al.,* 2020; Grzeskowiak *et al*., 2016; Maggioni *et al.,* 2019). However, prior research has mainly considered contexts such as shopping centers, overlooking the impact of in-store technologies use on well-being. Previous research on the impact of technology use on well-being mainly focused on life satisfaction (Linnhoff and Smith, 2017), customer well-being (Garrouch and Ghali, 2023) or subjective well-being (Roy et al., 2023), rather than specifically addressing shopping well-being. Shopping well-being captures the emotional state of life satisfaction consumers may experience while shopping (El Hedhli et al., 2013). To address these research gaps, the present study aims to (1) investigate how in-store technology use affects customer well-being across different dimensions of shopping value and (2) investigate whether perceived autonomy and competence enhance these effects and shopping well-being.

Shopping well-being

Consumption and shopping experiences can make people happy and induce subjective well-being if they lead to positive emotions, thoughts, and behaviors (Guevara & Howell, 2015). Subjective well-being is frequently defined as a positive affect, leading to greater life satisfaction (Purohit et al., 2022). It is considered as a relatively stable cognitive orientation towards life (Ryan and Deci, 2001) and has been extended recently by El Hedhli et al., (2013) to shopping well-being. Shopping well-being stems from experiences linked to a shopping experience and is defined as "a shopper's perceived impact of a shopping mall in contributing to satisfaction in important life domains (such as consumer life, social life, leisure life, and community life) resulting in a global judgement that the mall contributes significantly to one's overall quality of life" (El Hedhli et al., 2013, p. 857). For Sirgy *et al.* (2016), shopping well-being is "*the degree to which consumers perceive that shopping contributes to their overall life satisfaction*". The latter have a more hedonic conception of shopping well-being than El Hedhli *et al.* (2013) and we adopt this conception of the shopping well-being. Previous research has identified several antecedents of shopping well-being, including mall image (Shafiee and Es-Haghi, 2017), functional, convenience, safety, leisure, atmospherics and self-related factors (El Hedhli et al., 2013), self-congruity (El Hedhli et al., 2021) and shopping experience dimensions (Maggioni et al., 2019). Shopping value is another important antecedent of shopping well-being (El Hedhli et al., 2016) but findings concerning its effects on shopping well-being are inconsistent, especially when the analysis focuses on utility value.

Shopping value and its effects on well-being

Shopping value, results from the interaction between the consumer and the shopping environment and can be evaluated through two main dimensions: utilitarian and hedonic value (Babin et al., 1994; Jones et al., 2006). Utilitarian value refers to functional benefits of the

shopping (Holbrook and Hirschman, 1982) and involves the fulfillment of the functional expectations' consumers may have for a product or service. Hedonic value helps to fulfill fantasies and provides a sense of fun during the purchase process rather than simply buying for its own sake (Holbrook and Hirschman, 1982). The hedonic shopping value which stems especially from the enjoyment and pleasure that a shopper experiences during his shopping activities has a positive effect on shopping well-being (El Hedhli et al., 2016; Shafiee and Es-Haghi, 2017; Ali et al., 2021). This result is in line with the conclusions of research on the positive link between hedonic consumption and subjective well-being (Burroughs and Rindfleisch, 2002; Gilovich et al., 2015). The utilitarian shopping value seems to have no significant impact on shopping well-being (El Hedhli et al. 2016, Shafiee and Es-Haghi, 2017 and Ali et al., 2021). But these previous studies did not consider the in-store technology use which has an important impact on utilitarian shopping value (Flacandji and Vlad, 2022, Lao et al., 2021; Adapa et al., 2020). The in-store technology provides access to a wide range of information, stimulates the consumer (Grewal et al., 2023) and increases the utilitarian value thanks to the cognitive dimension of the experience (Goudey, 2013). Lao et al., (2021) studied precisely the in-store digital kiosk use and show that the pragmatic, cognitive, and sensorial dimensions of experience significantly influence utilitarian value. Other technologies used in-store like apps can provide customers with new capabilities (Dacko, 2017) enhancing their in-store shopping experience (Molinillo et al., 2020) and both utilitarian and hedonic shopping value (Flacandji and Vlad, 2022). Considering that Maggioni et al. (2019) prove the positive impact of both utilitarian and hedonic dimensions of the shopping experience in commercial centers on well-being, we propose the following hypothesis:

H1: Digital tool use during the shopping experience has a positive effect on perceived (a) utilitarian value and (b) hedonic value, compared to non-use

H2: Perceived (a) utilitarian value and (b) hedonic value have positive effects on shopping well-being

Technology use and psychological need satisfaction

Self-determination theory states that subjective well-being is experienced when the innate basic psychological needs for autonomy, competence and relatedness are fulfilled (Deci and Ryan, 1985; Ryan and Deci, 2008). If shopping experiences satisfy these psychological needs for autonomy, competence, and relatedness they can make people happy and induce subjective well-being (Guevara & Howell, 2015). In the shopping context, autonomy is the consumers' conscious or unconscious impression of freedom and the perception of control over the shopping process (Shen et al., 2023). Since digital tools in-store are specifically designed to offer a convenient shopping experience and to facilitate the buying of products or services, we suppose their features will foster consumer autonomy. Technological features like connectivity, personalization, controllability, and responsiveness can improve consumers' independent choices and autonomy (Shen et al., 2023). In the context of mobile payment apps, Zhang et al., (2022) observed that when users reach a high level of need satisfaction using an app, it boosts their confidence in their own autonomy. Competence refers to a person's need for feelings of effectiveness, achievement, and challenge (Deci and Ryan, 2000). Since in-store technologies like retail apps offer access to additional information, enabling customers to make more informed and confident choices (Fuentes et al., 2017), their use can enhance consumer competence (Flacandji et al., 2024; Japutra et al., 2022). To our knowledge, only Flacandji et al. (2024) have examined satisfaction of the psychological needs for autonomy and competence as specific antecedents of shopping well-being in the in-store shopping experience with app use, showing a positive relation only between competence and well-being. Nevertheless, this positive relationship between autonomy, competence and subjective well-being has been supported in various contexts related to digitalized experience, such as online retail (Shen et

al., 2023) or AI-enabled technologies (Andre et al., 2018). Considering that autonomy and competence are the psychological needs with the greatest influence on well-being (Deci and Ryan, 2000), we propose the following hypotheses:
H3: Perceived autonomy with regard to digital tool increases shopping well-being
H4: Perceived competence with regard to digital tool increases shopping well-being

Moderating role of autonomy, competence and projective use of technology
The variation in consumer differences arising from personality traits is of greatest interest in attitude formation and behavioral intentions (Dabholkar and Bagozzi, 2002). It is important to understand the role of consumer-specific characteristics in shaping well-being, as recognized by the literature focusing on personality factors and subjective well-being (Ryan and Deci, 2001). These characteristics are also recognized as moderators that interact with customer experience in relation to behavioral outcomes (Verhoef et al., 2009). In the context of self-service technologies, the self-efficacy or the sense of self-confidence in one's ability to do something makes consumers look on that activity as fun and to improve the enjoyment of the technology use (Dabholkar and Bagozzi, 2002). So, we can suppose the competence and autonomy act as moderator on the relationship between shopping value and shopping well-being. Regardless of these individual characteristics, facilitating and helping the consumer to project themselves into a digital tool use can improve their evaluation or encourage their adoption. Soley (2010) argues that projective techniques are much more reliable and exhibit greater predictive validity than many positivist instruments. This projective technique applied to digital tools thus makes it possible to test its moderation on the effects of value on well-being.
H5: Autonomy reinforces the effect of (a) utilitarian and (b) hedonic value on well-being
H6: Competence reinforces the effect of (a) utilitarian and (b) hedonic value on well-being
H7: The projective use of digital tools enhances the effects of perceived (a) utilitarian and (b) hedonic value on well-being

Study 1
The first study tests our basic prediction that using digital tools during shopping (as opposed to not using them) increases shopping value, which in turn improves shopping well-being. Customers' general levels of perceived autonomy and competence with digital tools are likely to enhance this well-being, as are the effects of value on this well-being.
Procedure and measures. The data collected comes from 470 participants (Appendix 1) in an online survey about a recent shopping experience[1]. For all constructs, items were adopted from well-established measures (Appendix 2). The reliability (Jöreskog's Rhô varies between 0.821 and 0.917) and convergent and discriminant validity are satisfactory (Appendix 3)[2].
Hypotheses testing. The correlation with well-being is insignificant for utilitarian value, whereas it is significant ($p<.01$) with hedonic value (Appendix 3). For hypothesis testing, PROCESS model 4 is used to explore the potential mediating role of utilitarian value and hedonic value in the relationship between the use or non-use of digital tools in a physical store and associated well-being. Model 14 extends this mediation analysis by further testing the direct influences of competence and autonomy and their moderating effects on the relationships posited between values and shopping well-being (Appendix 3). First of all, the results show a direct effect of the prior use of digital tools on shopping well-being. They also show that utilitarian value is not influenced by the use of digital tools, and has no effect on well-being.

[1] A total of 489 French consumers took part but we excluded 19 participants for failing the attention checks. 60.2% of respondents are women and 39.8% are men. Among the 470 respondents, 226 (48%) have already used digital tools in physical non-food stores (digital kiosks, digital screen, connected cabin, excluding automatic checkouts) while 244 say not.
[2] The statistics show that the levels of autonomy ($t=3.900$; $p<.01$) and competence ($t=3.039$; $p<.01$) are perceived as higher if the respondents have already used a digital tool in a non-food physical store than if they have never used one.

On the other hand, hedonic value is positively influenced by the use of digital tools (b=.290; p<.01), and this value reinforces well-being (b=.678; p<.01). The mediation of hedonic value in the relationship between usage and well-being also appears to be significant (b=0.1966; CI 95% [.0723; .3249]). These initial results validate the H1b and H2b hypotheses for hedonic value, and reject the H1a and H2a hypotheses associated with utilitarian value.
The results then show that general perceptions of autonomy and competence associated with the use of digital tools increase perceptions of shopping well-being, validating hypotheses H3 and H4 respectively. Mediations of hedonic value are maintained irrespective of perceived levels of autonomy and competence. Moderated mediation indexes do not show significant values. Moderation analyses show that only one interaction appears: that between competence and utilitarian value (b=0.104; p<.01). The conditional effects analysis shows that when the individual feels competent, there is no effect of utilitarian value on well-being, but when he or she feels little or no competence, utilitarian value reduces well-being.

Study 2

In Study 2, considering the low rate of digital tool use, we first attempt to replicate the results observed in Study 1 in a scenario-based experiment. We then examine how the use projection of the digital tool affects relations between shopping value and shopping well-being always considering general autonomy and competence, in order to test H7.

Procedure, design and measures. A scenario-based between-subjects experiment with 2 conditions (projection in the use of digital tools; non-projection in the use) was here used leading to a total sample of 952 observations, 574 and 378, respectively[3]. The measures were the same as in Study 1 and value and well-being measures have been adapted in the future tense. Reliability and validity indicators are also validated (Appendix 3 and 4)[4].

Hypotheses testing. As in Study 1, the correlation with well-being is not significant for utilitarian value while it is significant (p<.01) with hedonic value (Appendix 4). Results indicate that utilitarian value is not influenced by the use of digital tools and that it does not affect well-being. Hedonic value is positively influenced by the use of digital tools (b=.130; p<.05) and this value reinforces well-being (b=.621; p<.01). The mediation of hedonic value in the relationship between use and well-being is significant at the threshold of p<.10 when the sample is considered in its entirety. These results, allow us to validate hypothesis H1b and H2b for hedonic value and to reject hypothesis H1a and H2a associated with utilitarian value. PROCESS procedure 14 then indicates that general autonomy and competence increase feelings of shopping well-being and these significant relationships also validate hypotheses H3 and H4 for this study 2. The mediations of hedonic value are also observed regardless of the levels of perceived autonomy and competence. The moderated mediation indices do not present significant values except for the interaction of competence with hedonic value (b=.011; 95% CI [.0001; .0283]). These analyses actually show that the two moderations are significant in the relationship between hedonic value and well-being: autonomy (b=.037; p< .10) and competence (b=.084; p<.01). The conditional effects highlight that the influence of hedonic value on well-being is greater when competence or autonomy increases, validating H5b and H6b for this study 2. PROCESS model 14 is also used to test hypothesis H7. The results indicate that the moderation of the projection in the use of digital tools is significant for the effect of perceived (a) utilitarian value on well-being (b=.172; p<.01). The conditional effects show that utilitarian value has no influence on well-being when the individual is not projected into the use of digital tools. This impact becomes significant when the individual is projected into their use (b=.138;

[3] 20 respondents for the first scenario and 14 for the second scenario were eliminated because they failed the attention checks, In this second study, the statistics are very close to study 1 (Appendix 1). For this study 2, among the 952 respondents, 550 (58%) have already used these digital tools and 402 respond that they have not.

[4] Here again, the statistics show that the levels of autonomy (t=3.310; p<.01) and competence (t=4.471; p<.01) are perceived as higher if the respondents have already used a digital tool in a non-food physical store than if they have never used one.

p<.01). The moderation posed by H7b on the effect of hedonic value is not verified. The mediation of hedonic value between prior use and well-being always remains significant whether or not for projection into use.

General discussion

In both studies, shopping well-being is directly reinforced by general perceptions of competence and autonomy with regard to digital tools, but also by the hedonic value of shopping. The mediation of the hedonic value, i.e. the indirect effect of prior use of digital tools on well-being through this value, is emphasized both in Study 1, which analyzes past experience in a non-food store, and in Study 2, which looks at future experience and whether or not the use of digital tools is projected. In this second study, competence and autonomy appear even more as individual characteristics that reinforce the beneficial effect of hedonic value on well-being. Thus, the central role of joy, pleasure and escape is confirmed in this study, and the prior use of digital tools reinforces the well-being felt through this hedonic value. These results are in line with the conclusions of El Hedhli et al., (2016), Shafiee and Es-Haghi (2017) and Ali et al., (2021).

This research reveals that the use of in-store digital tools does not increase utilitarian value, and this value has no effect on well-being, with the exception of two situations: projection in the use of digital tools makes the effect of utilitarian value on well-being significant; when consumers analyze a past shopping experience, if they feel little or not competent in the use of digital tools, utilitarian value diminishes the feeling of well-being. This surprising result (Lao et al., 2021; Flacandji and Vlad, 2022 prove the opposite) may be explained by the perceived complexity of in-store digital tool that can have a negative effect on shopping value (Adapa et al., 2020). Projection into use of a digital tool may, however, increase the perceived utilitarian value and its effect on well-being. This result can possibly be explained by the customer's self-mental imagery encouraged by the use of a digital tool, in absence of real conditions, with both visual and textual information. Mental imagery plays a crucial role in information processing and thus on utilitarian value (Lao et al., 2021). Previous literature has been inconclusive as to whether technology use has a positive or negative impact on well-being. We show that it has a positive impact on well-being via the hedonic value which is reinforced by competence and autonomy. Contrary, to findings of Flacandji et al., (2024) who show no effect of in-store application use on autonomy, we show that both perceptions of competence and autonomy associated with the use of digital tools have a positive impact on shopping well-being.

This research contributes to the literature on omnichannel retailing by showing the positive role of in-store digital tools use on shopping well-being.

At the level of managerial implications, since both studies show the hedonic shopping value improves shopping well-being, retailers should highlight this effect in their communication campaigns. They should also promote the utilitarian benefits of these tools, producing demonstration videos of their use, provoking the desire to try them and educating the consumer. Discounts or promotional offers to encourage first use could be considered. Communication about the digital tools should clearly highlight the features that enable customers to become smart and autonomous shoppers and the positive impact of digital use on their shopping well-being.

The current research is not exempt of some limitations that offer potentially useful opportunities for future research. First, half of the respondents are students in both studies. It can be useful to test the proposed hypotheses on a more representative sample. Second, Study 2 led respondents to imagine using/not using a specific version of digital kiosk of their choice. To increase ecological validity, it could be useful to run a field experiment with a given retailer.

Third, our results showed no impact of digital tool use on utilitarian shopping value. Further research could thus attempt to better understand the underlying mechanism that explain this result.

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Appendix 1. Descriptive statistics of Study 1 and 2

		Study 1 n = 470 %	Study 2 n = 952 %
Gender	Male	40.1	39.8
	Female	59.9	60.2
Age	18-24 years	63.4	65.1
	25-34 years	6.6	7.4
	35-44 years	10.0	8.7
	45-54 years	11.9	10.5
	55-64 years	5.3	4.7
	65 and over	2.8	3.6
Socio-Professional Category	Farmer, operator	1.1	.6
	Artisan, trader, business manager	3.4	6.4
	Executive and higher intellectual profession	10.4	10.5
	Employee	21.5	18.2
	Student	52.6	53.4
	Worker	1.3	1.4
	Intermediate profession	1.7	2.3
	Retired	2.8	4.3
	Without activity	5.3	2.9
Diploma	No diploma	6.0	4.1
	Former brevet, a BEPC	4.3	2.5
	CAP/ BEP	6.2	6.1
	Bac of general or technological or professional education	32.3	32.6
	Bac+ 2 or level bac+ 2 (DUT, BTS, DEUG)	25.1	22.1
	License	12.1	12.5
	Master's degree	11.1	11.0
	Doctorate	.9	2.1
	Other	2.1	7.0
Place where you must often do your non-food shopping (sports goods, clothing, shoes, beauty products, etc.)?	Mobile applications	8.3	7.7
	Physical stores	65.3	64.8
	Website	26.4	27.5
Use or not of digital tools in non-food physical stores *(terminals, digital screen, connected cabin, excluding automatic checkouts)?*	Non-use of digital tools	51.9	39.7
	Use of digital tools	48.1	60.3
Loyalty Program	Non Member	53.2	52.2
	Member	46.8	47.8
Time elapsed since this store visit	Between 2 and 7 days	25.5	32.6
	Between 8 and 14 days	16.4	22.1
	Less than 2 days	13.8	14.0
	More than 14 days	44.3	31.4
Non-users of digital tools		**n = 244 51.9%**	**n = 550 42,2%**
Category of product purchased the last time	Sporting goods	11.9	11.9
	Shoes	9.4	10.2
	Decoration/furniture	9.4	6.9
	Household appliances	4.1	3.9
	Cultural products	7.0	7.0
	Beauty/hygiene products	11.9	15.7
	Clothing	36.5	39.8
	Others	9/8	4.6
Users of digital tools		**n = 226 48.1%**	**n = 550 57.8%**
Frequency of use of digital tools	Every time I visit the store	2.8	6.0
	Less often	16.8	32.4
	Very rarely	16.0	41.6
	Once in two	12.6	20.0
Digital tools already used (many possible responses)	Digital terminals	47.5	35.7
	Connected cabin	5.1	3.3
	Touch screen	42.6	55.1
	Other	4.8	5.9
For which product category have you used digital tools the most?	Sporting goods	25.2	11.9
	Shoes	3.5	10.2
	Decoration/furniture	12.4	6.9
	Household appliances	7.1	3.9
	Cultural products	8.8	7.0
	Beauty/hygiene products	8.4	15.7
	Clothing	24.8	39.8
	Others	9.7	4.6

Appendix 2. Measures used in Study 1 and 2

Autonomy (adapted from Thomson, 2006)
Jöreskog's Rhô: Study 1= 0.891 - Study 2= 0.909
When I use digital tools, I feel free to be who I am
When I use digital tools, I feel that my choices are based on my true interests and values
When I use digital tools, I feel free to do things my own way
Using digital tools gives me the impression that my choices express my 'true' self

Competence (adapted from Thomson, 2006)
Jöreskog's Rhô: Study 1= 0.900 - Study 2= 0.913
In general, using digital tools makes me feel very capable and effective
I feel competent when I use digital tools (item reversed in the original scale)
Using digital tools makes me feel like I can accomplish difficult tasks
Using digital tools makes me feel like I can take on challenges
When I use digital tools, I feel competent in what I do

Shopping well-being (adapted from Nicolao et al., 2009 and Sirgy et al., 2016)
Jöreskog's Rhô: Study 1= 0.917 - Study 2= 0.927
Every time I shop in this place, it contributes to my happiness
In some way, shopping at this store contributes to my overall satisfaction with life
Shopping in this place contributes to my well-being
Shopping in this store contributes in some way to my happiness

Perceived shopping value (adapted from Picot-Coupey et al., 2020)
Utilitarian value
Jöreskog's Rhô: Study 1= 0.821 - Study 2= 0.824
I accomplished just what I wanted to on this shopping trip
While shopping, I found just the item(s) I was looking for

Hedonic value
Jöreskog's Rhô: Study 1= 0.840 - Study 2= 0.818)
This shopping trip was truly a joy
I enjoyed being immersed in exciting new products
While shopping, I felt a sense of adventure

For Study 2, value and well-being measures have been adapted to the future.

Appendix 3. Results of Study 1

Table 1. Correlations between model variables - Study 1

	Shopping well-being	Utilitarian value	Hedonic value	Competence	Autonomy
Shopping well-being	.857				
Utilitarian value	-.070	.840			
Hedonic value	.771**	-.042	.799		
Competence	.416**	.109*	.326**	.802	
Autonomy	.488**	.030	.415**	.751**	.819

The values of the extracted mean variance roots are presented on the diagonal.
*p < 0.05; **p < 0.01 (two-tailed test).

Convergent validity was assessed using the average variance extracted (AVE) score, where convergent validity is supported if the AVE score is above the 0.50 threshold. The minimum AVE is 0.64. The square root of the minimum average variance extracted (AVE) of each construct (0.799) being greater than the maximum correlation (0.771) between the constructs of the model, the discriminant validity of the measures is also verified (Fornell and Larcker, 1981).

Table 2. Effects on shopping well-being: mediation and moderation analyses - Study 1

Model 4			***Mediator : Utilitarian Value***			***Mediator : Hedonic Value***		
Dependent variable	Utilitarian Value	Hedonic Value	Well-being			Well-being		
Digital tool use	-.072	.290**	.414**			.221**		
Mediator : Utilitarian Value			-.057			-		
Mediator : Hedonic Value			-			.678**		
F	.076	10.0556**	11.481**			227.632**		
R^2	.001	.021	.047			.494		
			Indirect Effects – CI 95%					
			Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI
		Mediator	.0041	-.0083	.0246	.1966	.0723	.3249

Model 14		***Moderator : Autonomy***						***Moderator : Competence***					
Dependent variable		Well-being			Well-being			Well-being			Well-being		
Digital tool use		.261**			.187**			.307**			.187**		
Utilitarian Value		-.076			-			-.094			-		
Moderator		.416**			.171**			.370**			.183**		
Utilitarian Value X Moderator		.050			-			.104**			-		
Hedonic Value					.605**						.623**		
Hedonic Value X Moderator					-.039						-.009		
F		32.850**			131.105**			28.679**			127.753**		
R^2		.220			.530			.198			.524		
		Indirect Effects – CI 95%											
Autonomy	*Competence*	Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI
-1.1490	*-1.2516*	.0096	-.0154	.0439	.1882	.0720	.3087	.0161	-.0251	.0647	.184	.0663	.3092
.1418	*.0781*	.0050	-.0078	.0256	.1737	.0639	.2877	.0062	-.0094	.0299	.181	.0657	.3024
1.1003	*1.0039*	.0015	-.0103	.0197	.1630	.0586	.2826	-.0007	-.0165	.0162	.178	.0644	.2993
Conditional effects of utilitarian value at values of competence	*-1.2516*							-.224**	-.3474	-.1002			
	.0781							-.086*	-.1684	-.0041			
	1.0039							.010	-.0996	.1187			

**p< 0.01; p< 0.05; †p<0,10 (two-tailed test)

Appendix 4. Results of Study 2

Table 1. Correlations between model variables - Study 2

	Shopping well-being	Utilitarian value	Hedonic value	Competence	Autonomy
Shopping well-being	.873				
Utilitarian value	.061	.843			
Hedonic value	.709**	.083*	.780		
Competence	.547**	.167**	.530**	.838	
Autonomy	.580**	.151**	.489**	.773**	.847

The values of the extracted mean variance roots are presented on the diagonal.
**p< 0.01; * p< 0.05 (two-tailed test)

Table 2. Effects on shopping well-being: mediation and moderation analyses - Study 2

Model 4			***Mediator : Utilitarian Value***			***Mediator : Hedonic Value***		
Dependent variable	Utilitarian Value	Hedonic Value	Well-being			Well-being		
Digital tool use	-.005	.130*	-.045			-.036		
Mediator : Utilitarian Value			.070			-		
Mediator : Hedonic Value			-			.621**		
F	.0059	3.9493*	2.597			296.5448**		
R^2	.000	.006	.005			.385		
			Indirect Effects – CI 95%					
			Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI
		Mediator	-.0004	-.0110	.0116	.0809	-.0004	.1612
			Indirect Effects – CI 90%					
		Mediator	-.0004	-.0085	.0086	.0809	.0121	.1501

Model 14		***Moderator : Projection into use***					
Dependent variable		Well-being			Well-being		
Digital tool use		.043			-.043		
Utilitarian Value		-.035			-		
Moderator		-. 064			.114**		
Utilitarian Value X Moderator		.172**			-		
Hedonic Value					.668**		
Hedonic Value X Moderator					-.060		
F		3.229*			151.376**		
R^2		.013			.390		
	Projection	Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI
	No use	.0002	-.0089	.0106	.0870	.0012	.1791
	Use	-.0007	-.0209	.0191	.0792	.0010	.1632
Conditional effects of utilitarian value at values of Projection	*No use*	-.0346	-.1350	.0659			
	Use	.1378**	.0561	.2196			

Model 14		***Moderator : Autonomy***						***Moderator : Competence***					
Dependent variable		Well-being			Well-being			Well-being			Well-being		
Digital tool use		-.073			-.088			-.111			-.091		
Utilitarian Value		-.017			-			-.027			-		
Moderator		.546**			.336**			.528**			.275**		
Utilitarian Value X Moderator		.005			-			-.018			-		
Hedonic Value					.488**						.511**		
Hedonic Value X Moderator					.037†						.084**		
F		97.994**			219.549**			86.203**			199.590**		
R^2		.293			.481			.267			.457		
		Indirect Effects – CI 95%											
Autonomy	*Competence*	Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI	Effect	Boot LLCI	Boot ULCI
-1.1338	*-1.1511*	.0001	-.0078	.0075	.0581	.0001	.1178	.0000	-.0073	.0064	.0540	.0014	.1079
.0656	*.0957*	.0001	-.0048	. 0055	.0639	.0001	.1288	.0001	-.0056	. 0064	.0676	.0018	.1353
1.0966	*.9908*	.0001	-.0052	. 0067	.0689	.0001	.1409	.0002	-.0071	. 0093	.0774	.0021	.1572
Conditional effects of utilitarian or hedonic value at values of moderator		*-1.1338*			.4461**	.3828	.5094	*-1.1511*			.4146**	.3496	.4796
		.0656			.4909**	.4378	.5439	*.0957*			.5195**	.4634	.5756
		1.0966			.5292**	.4498	.6086	*.9908*			.5948**	.5168	.6728

**p< 0.01; p< 0.05; †p<0,10 (two-tailed test)