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Gamified in-store mobile marketing: The mixed effect of gamified point-of-purchase advertising

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ABSTRACT

This study investigates the effect of gamification on in-store mobile advertisement. More specifically, it investigates the effect of gamification on the inclination to act on offers gained at point of purchase. For this purpose, a field experiment was conducted at a supermarket, where real customers were recruited. Eye tracking, smartphone activity logging and choice were used to investigate the customers' behaviour. The results reveal that gamification is not always useful for increasing the tendency to act on offers. In fact, engagement in a gamified shopping task is needed; otherwise, the tendency to act on offers might even decrease when gamifying.

1. Introduction

Surveys have shown that as many as 90 per cent of customers use smartphones while visiting stores (SeessionM, 2015). This ubiquity of Internet-connected mobile devices is an important facilitator for the transformation of retailing due to digitalisation (Hagberg et al., 2016), and their constant companionship with their owners make them a fitting supplementary channel for physical retailers (Shankar et al., 2010). These devices open up new possibilities for these retailers to integrate online and physical store offerings, thus creating competitive advantages through multichannel or omnichannel customer experiences (Lemon and Verhoef, 2016; Verhoef et al., 2015). In fact, such devices have the potential to change the retailing paradigm from one based on customers who enter the retailing environment to one in which retailers enter the customers' environment anytime and anywhere (Shankar et al., 2010). To do this, the location sensitivity of smartphones can be used to develop location-based services that provide functions based on where the service is engaged (Shankar and Balasubramanian, 2009; Wilson, 2012). Such functions enable retailers to use smartphones as a means to enter the customers' environment in stores at the point of purchase for marketing purposes.

Another recent development that has taken advantage of the widespread presence of mobile phones is gamification. Using a gamified service triggers psychological outcomes – that is, gameful experiences – that motivate specific behavioural outcomes (Huotari and Hamari, 2017). From a marketing perspective, such outcomes might include attitude, purchase/repurchase, retention and engagement (Hofacker et al., 2016). With these kinds of outcomes, it is unsurprising that gamification has attracted the attention of retailers. For example, one survey found that 87 per cent of the responding retailers expected to have integrated gamification features into their loyalty programmes by 2020 (Boston Retail Partners, 2015). Beyond loyalty programmes, gamification has also been suggested as a tool for affecting customers' purchase decisions, with the goal of increasing sales (Bittner and Shipper, 2014; Gatautis et al., 2016; Hofacker et al., 2016; Ramadan and Farah, 2017). For physical retailers, combining the location sensitivity of smartphones with gamification seems like a good fit for improving the effect of point-of-purchase marketing.

The purpose of the present study is to investigate how gamification can be used to improve the effectiveness of smartphone-based in-store marketing. More specifically, we study the effect of gamified mobile offers on customers' decision making at the point of purchase. Furthermore, since gameful experiences mediate the effect of gamification on behavioural outcomes, these experiences need to emerge in order for the behavioural outcome to occur (Huotari and Hamari, 2017). Since these gameful experiences are only created when the gamer is engaged in a game (Ermi and Mäyrä, 2005; Huotari and Hamari, 2017), we also investigate the role of engagement when gamifying mobile offers. For this purpose, a field experiment with two conditions – one gamified and one control condition – was conducted at a supermarket involving customers on a regular shopping trip. Product choice, eye tracking, and smartphone activity logging were used to investigate the customers' behaviour.

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2. Theory and hypotheses development

Mobile phones are a constant, personal companion of their users (Shankar et al., 2010); as a result, mobile marketing has become an alternative tool for retailers to reach their customers (e.g., Shankar and Balasubramanian, 2009; Shankar et al., 2010; Ström et al., 2014). One implementation of mobile marketing is mobile advertisements that utilise the customer's location. Little research has been conducted into this type of advertisement (Bues et al., 2017), although the few studies that have been published on this topic show some potential. For example, one study found that using location to trigger advertisements in stores was more effective as a value driver than either personalisation or price promotions (Bues et al., 2017); another study found that mobile promotions that made customers take a detour from their planned path increased unplanned spending (Hui et al., 2013). These examples indicate that mobile advertisements powered by location-based services might have potential to increase sales. In fact, it has often been assumed that location-based marketing is more effective than other types of in-store marketing efforts, and this would be the result of greater attention being paid towards phones than to the store itself (Bues et al., 2017).

One possible way to enhance the effect of mobile advertisement is to use gamification. Gamification is the "process of enhancing a service with affordances for gameful experiences in order to support users' overall value creation" (Huotari and Hamari, 2017, p. 25). These affordances – or game elements, to adopt a related and often-used term (e.g., Deterding et al., 2011) – are building blocks of what constitutes a game. These can include rewards, points, levels, stories or challenges (Hamari et al., 2014). By triggering psychological states – that is, gameful experiences – the gamified service will motivate a desired behavioural outcome (Huotari and Hamari, 2017). As such, these gameful experiences are an integral part of the usage of gamified services (Deterding et al., 2011; Huotari and Hamari, 2017), even to the extent that if they are not experienced by the user, the gamification process has failed (Huotari and Hamari, 2017).

Gamification has been suggested to have several effects of interest for marketers; for example, brand engagement (Berger et al., in press), customer loyalty (Hofacker et al., 2016; Poncin et al., 2017), brand attitude (Yang et al., 2017), engagement (Hofacker et al., 2016; Wu et al., 2016) and customer movement (Wakao et al., 2016). Gamification also has the potential to affect purchase decisions (Bittner and Shipper, 2014; Gatautis et al., 2016; Hofacker et al., 2016; Ramadan and Farah, 2017). However, few quantitative studies have shown this effect and, to the best of our knowledge, only two studies have shown a causal link between gamification and purchase decisions. Firstly, Hildebrand et al. (2014) introduced the concept of product gamification, which includes unlocking products, offers or features through challenges. In five studies, both from the field and from the lab, they showed that gamification boosts preferences for an unlocked alternative and increases the number of features chosen in a gamified shopping situation. In the second study, Müller-Stewens et al. (2017) gamified information presentation. They argued that gamification promotes innovation adoption through: (a) playfulness, which increases consumer curiosity for the innovation; and (b) perceived vividness, which increases the perceived relative advantage of the innovation. These propositions were tested in seven consecutive studies, including two field experiments. It is worth noting that one of these field experiments was conducted on a real car-manufacturing website, in which a quiz before a car-configuration choice increased spending.

Purchase behaviour is a type of decision-making. It comprises both process and choice; therefore, the key to understanding it is to look at both of these components (Svenson, 1979). For this purpose, visual attention is often conceptualised as the precursor of choice and as a pivotal factor for product choice (Chandon et al., 2009; Otterbring et al., 2014; Pieters and Warlop, 1999; Wästlund et al., 2018). For instance, Otterbring et al. (2014) measured both choice and visual attention in order to understand the process leading to the effect of signage material on purchase behaviour. They concluded that signage material influenced visual attention towards the exposed products, even though it did not result in conversion. This shows a clear separation of the process from choice, and highlights the importance of measuring both in order to understand customers' purchase behaviour. Accordingly, in order to understand the effect of gamification on purchase behaviour, it is important to include a process perspective, since solely using the choice might not fully reflect its influence.

2.1. Hypothesis development

Dealing with challenges is part of playing games (Juul, 2003). As such, being challenged is one of the dimensions that is used to describe the experience of games within research on digital games (Ijsselsteijn et al., 2008; Jennett et al., 2008; Sweetser and Wyeth, 2005). This is also the case for gamified services, for which one of the specific game elements that can be implemented are challenges (Hamari et al., 2014). Studies have proposed and shown that purchase behaviour can be affected by a challenge during gamified shopping. For example, unlocking an offer by successfully dealing with such a challenge increased the preference to act on that offer (Hildebrand et al., 2014). This effect can be attributed to the effort needed to deal with the challenge, and has been investigated in situations beyond gamification. For example, earning a reward has been shown to increase the degree to which this reward is liked, compared to receiving it by chance (Loewenstein and Issacharoff, 1994). Taken together, this previous research suggests that an offer that was won by successfully completing a challenge during a gamified shopping task will be preferred.

From a decision-making perspective, preferences can be seen as affecting both the process leading up to the choice and the choice itself. With regard to the process, increased preference has been shown to result in increased attention (Russo, 2011). Hence, we hypothesise that:

H1:. Customers earning an offer by successfully completing a challenge during a gamified shopping task will more often look at products targeted by the offer.

Furthermore, since increased attention has been shown to result in increased probability of choice (Chandon et al., 2008; Pieters and Warlop, 1999), we hypothesise that:

H2:. Customers earning an offer by successfully completing a challenge during a gamified shopping task will more often choose products targeted by the offer.

Given that a game requires the active involvement of a player (Huotari and Hamari, 2017), it seems reasonable to attribute this requirement to the nature of games as "the voluntary attempt to overcome unnecessary obstacles" (Suits, 1978, p. 41). If there is no involvement, there will be no voluntary attempts to deal with unnecessary obstacles. A different term that has been used within games research for involvement is "engagement" (Brockmyer et al., 2009), which is the term of choice throughout this paper. In the present study, engagement is considered to be "the degree of activity or attention someone gives to a person or object over some period of time" (Martey et al., 2014, p. 530).

From a service marketing perspective, the need for player engagement can be understood as the need for co-creation for value to be generated (e.g., Huotari and Hamari, 2017; Vargo and Lusch, 2004; Vargo and Lusch, 2008). This means that the user of a service needs to be engaged in the value-creation process; otherwise, no value will be created. Following the same line of reasoning, gameful experiences are co-created (Ermi and Mäyrä, 2005; Huotari and Hamari, 2017). Accordingly, if there is no engagement in the usage of a game, no gameful experience will be created. The hypothesised effect of gamification on the point-of-purchase decision and decision process was described above as being caused by the gameful experience of being challenged. Following the argument that engagement is needed in order for gameful

Table 1
Game elements that were exposed to participants in the gamified condition.

Game element	Description
Quiz	The four food-related questions found close to the target product were the main game element. One out of four alternative answers was correct.
Reward	The participant received an offer for successfully answering a quiz question.
Hunt for offers	The participant had to find the location for the quiz question to appear.
Feedback	The user received direct feedback about whether they had answered correctly or incorrectly.
Time limit	A 30-second time limit was set for each question to be answered.
Visual feedback	When there were 10 s remaining, the interface started to flash red.
Haptic feedback	When there were six seconds remaining, the phone started to vibrate.
Others' response	A function showed what other participants had supposedly answered.
50/50	A function removed two of the wrong alternative answers.

experiences to be created, engagement is needed in the usage of a gamified service in order for a user to feel challenged. Therefore, the hypothesised effects of gamification on the point-of-purchase decision are dependent on the engagement level in the gamified shopping task. This points towards an interaction effect between engagement and gamification on visual attention and choice. Thus, we hypothesise that:

H3:. When engagement increases, the effect of gamification on how much a customer looks at products (which are targeted by an offer) increases.

H4:. When engagement increases, the effect of gamification on how much a customer chooses products (which are targeted by an offer) increases.

3. Method

The present study was a field experiment using a 1x2 between-groups design. The participants were randomly assigned to either a gamified condition or a control condition. In the gamified condition, the participants completed a gamified shopping task. In the control condition, they completed the same shopping task without being exposed to any game elements. The task was set up using a shopping list procedure implemented in previous research (e.g., Otterbring et al., 2014; Titus and Everett, 1996). The study was conducted at a store belonging to one of the most well-known grocery store chains in Sweden.

3.1. Procedure

Participants were recruited at the entrance of a grocery store, and they were told that they would receive a lottery ticket for participating. A minor deception was used, as the participants were told that the study was investigating the effect that smartphones have on customers; nothing was said about the effect of gamification on purchase decisions. Participants were told to imagine themselves shopping for food for a coffee break that they would offer their co-workers. The food included six easy-to-find products (bread in bag, sliced cheese, tomatoes in box, butter, coffee and dark chocolate), which were chosen for the purpose of matching the shopping task. In the gamified condition, the participants were also told that they would participate in a challenge, and received instructions accordingly. Finally, they were told not to do their real shopping during the task. After these instructions, participants were asked to put the eye tracker on, which was then calibrated. Subsequently, they were handed a smartphone with an app installed that presented the shopping list and, in the gamified condition, the game elements. At this point, the participants were sent into the store to complete the shopping task at their own accord. After the participants finished the task, the eye tracker was removed and they received the lottery ticket. Finally, the real objective of the study was explained.

3.1.1. Gamified condition

The challenge, in which the participants in the gamified condition were asked to participate, was a food-related quiz. On four out of six items on the shopping list, there was a quiz question that, if answered correctly, would give the participant access to the discount offer. The quiz was triggered in the proximity of the discounted target product. If the quiz question was answered correctly, the discount offer was displayed in the app. This also made it visible in the shopping list for later retrieval. If the question was not answered correctly, the offer was never displayed. To further increase the feeling of having a challenge, a time limit of 30 s was set for each question to be answered.

In order to minimise the loss of participants due to not successfully answering the quiz, the questions were constructed to be fairly simple. To further minimise this potential problem, two help features were implemented. First, a 50/50 option was included, in which two of the wrong answers were removed. Second, there was a "How did others answer?" option, which showed the frequency with which other people had supposedly provided certain answers. Both these functions were set up in such a way that, when they were used, it should become obvious for most people what the correct answers were. Each of these help features could only be used once during the task. All game elements implemented in the app are presented in Table 1.

3.1.2. Control condition

In the control condition, all game elements were removed from the app. The shopping list was still present. This condition was created to mimic a normal shopping task as much as possible, given that such an app-based shopping list was still used. Accordingly, all four offers were present in the shopping list during the full extent of the task. Furthermore, the participants had to press the offer button in the user interface to retrieve the offers.

3.2. Participants

A convenience sample of real customers recruited at the entrance of a grocery store was used. The total number of participants was 106. Of these, 14 were removed from the gamified condition and nine were removed from the control condition due to a prerequisite that they had to be exposed to all four offers to be part of the analysis. The reasons for this loss were predicted. In the gamified condition, the offers were never exposed to the participants who did not answer all questions correctly (72 per cent answered all four questions correctly). In the control condition, the offers had to be retrieved by the participants. Those who did not do so were not exposed to the offers (81 per cent looked at all offers). Furthermore, during coding of the eye-tracking recordings, six of the participants were identified as either (a) not choosing all products on the shopping list ($n = 2$); (b) not understanding the assignment ($n = 1$); or (c) having a recording that was incomplete ($n = 3$). All six of these participants were removed from the analysis. Finally, to avoid distortion from extreme values on the measured fixations on targeted products, two outliers were removed using the cut-off value: $z = 3.29$. In particular, for small samples, a z-value of this magnitude suggests that they should be handled as outliers (Tabachnick and Fidell, 2013). This left a total of 75 participants

(female: 43 per cent; age: M = 38; both gender and age evenly distributed between groups) that were used during the analysis.

3.3. Measurement instruments

3.3.1. Engagement

Engagement metrics is one name for measures used to evaluate engagement when using software. For instance, such metrics can be click-through rates, page views (Lehmann et al., 2012) and mouse clicks (Martey et al., 2014). Regarding games and games research, these types of user-action metrics can be used to understand the experience of games (Elson et al., 2014), which includes engagement (e.g., Brockmyer et al., 2009; Martey et al., 2014; Wiebe et al., 2014). This type of metric has also been used to measure the engagement in tasks supported by software. For example, Beer et al. (2010) used mouse clicks in a learning management system to measure student engagement in courses. Thus, following this notion of using user-actions as an indication of engagement in tasks supported by software, the click-through rate to the discount offers was the used operationalisation of engagement in the shopping task that was gamified. The click-through rate – that is, how many times the offer was viewed in the app – was logged by the smartphone app.

3.3.2. Fixations on targeted products

Fixations on products that were targeted by the offers were measured using an eye-tracking device. The fixation count is the number of times the eyes have rested on a specific area. This is a measure of semantic importance, meaning that if an option is important for a certain task, then the fixation count will increase (Henderson et al., 1999). Hence, this is a measure of interest and one of the most common measures used in eye-tracking research (Otterbring et al., 2014; Wästlund et al., 2015, 2018).

3.3.3. Choice of targeted products

We measured whether the participants chose the products that were offered at a discount during the shopping task. The products offered at a discount were: (1) bread from the Polarbröd brand; (2) Romantica tomatoes under the grocery-store chain's private label brand; (3) coffee from the Gevalia brand; (4) dark chocolate from the Lindt brand. All of these brands are well known in Sweden.

3.4. Apparatus and material

To realise the experiment, an app was developed that was distributed using a smartphone. Fig. 1 provides examples of some of the dialogs of the user interface of the app. These dialogs were originally in Swedish, and have been translated into English for the purpose of this article. iBeacons were placed at four locations in the store. The app was designed to trigger the quiz at a suitable distance from these locations. Since iBeacons use Bluetooth technology, which does not always offer solid accuracy for judging distances (Paek et al., 2016), it is not possible to specify exactly how far away from the target they were triggered. In order to avoid the risk that the app would be triggered by iBeacons from two different locations at the same time, only products located far away from each other were included in the study.

Visual attention was measured using a 120-Hz corneal reflection eye-tracking system provided by Tobii Technology. The eye tracker looks similar to a pair of regular glasses that has a cable connected to a processing unit with a wallet-sized format. It is an unobtrusive system that provides the opportunity to record real-world gaze behaviour with two-degree accuracy. The equipment outputs a video recording of the frontal view of the participant, with a gaze point overlay showing where the participant has looked. The gaze point was filtered using Tobii I-VT (Attention) fixation filter (Olsen, 2012). The fixations on the targeted products were counted. This was performed by two research assistants. A random set of coded data was visually inspected by senior researchers for quality issues.

4. Results

There were significantly more fixations on the targeted products in the control condition (M = 18.78, SD = 11.84) than in the gamified condition (M = 13.23, SD = 8.61); t (73) = 2.3, p = 0.024. Thus, H1 was rejected. Regarding choice, 60 per cent of the participants chose the bread and tomatoes that were offered at a discount; 56 per cent chose the coffee offered at a discount; and 69 per cent chose the dark chocolate offered at a discount. These targeted products were chosen (M = 2.82, SD = 0.97) significantly more often in the control condition than in the gamified condition (M = 2.06, SD = 1.12); t (73) = 3.17, p = 0.002. Thus, H2 was also rejected. In fact, for both H1 and H2, the results were the complete opposite of what had been hypothesised.

Going further, the PROCESS computational tool (Hayes, 2013) release 2.13 (Model 1) was utilised to investigate the moderating effect of engagement. The first investigated interaction was how engagement affects the influence of the experimental condition on the tendency to look at products targeted by an offer (H3). Thus, the independent variable was the experimental condition (represented as 0 for the control condition and 1 for the gamified condition), and the moderating variable was engagement represented by the mean click-through rate to the offers (M = 5.35, SD = 2.02). The dependent variable was the number of fixations on the targeted products. This model explained 14.6 per cent of the variance in the number of fixations (R^2 = .146, F [3,71] = 4.06, p = 0.010). In the control condition, the number of fixations on the targeted product was significantly larger (B = -31.49, SE = 10.54, t = -2.99, p = 0.004) compared to the gamified condition. Engagement and the number of fixations on the targeted products were not significantly associated (B = -0.96, SE = 0.68, t = -1.41, p = 0.164). Finally, and consistent with H3, the interaction between condition and engagement was significant (B = 5.48, SE = 2.23, t = 2.46, p = 0.016). Thus, the negative effect of gamification on the tendency to look at targeted products was dependent on the engagement of the participants (Fig. 2).

A significant interaction does not say anything about, for example, whether the independent variable has an impact on the dependent variable for those high on the moderator but not for those low on the moderator. In order to conduct this type of analysis, spotlight analysis can be used (Hayes, 2013). In the present study, one standard deviation above and below the mean was used to represent high and low values of the moderator. The results show that, for high (t = 1.32, p = 0.190) and moderate (t = -0.70, p = 0.487) levels of engagement, the experimental condition did not significantly affect the number of fixations on the targeted products. For the participants who were low on engagement, being in the gamified condition caused a significant decrease (t = -3.28, p = 0.002) in the number of fixations on the targeted products.

The second investigated interaction was how engagement affects the influence of the experimental condition on the tendency to choose products targeted by an offer (H4). The independent variable was still the experimental condition (0 for the control condition and 1 for the gamified condition), and the moderator was still engagement (that is, the mean click-through rate to the four offers) (M = 5.35, SD = 2.02). The dependent variable was the number of times the targeted products had been chosen. This model explained 26.4 per cent of the variance in this decision (R^2 = .264, F [3,71] = 8.49, p < 0.001). Targeted products were chosen significantly (B = -4.06, SE = 1.01, t = -4.02, p < 0.001) more often in the control condition than in the gamified condition. Engagement and the number of times the targeted products were chosen were not significantly associated (B = -0.01, SE = 0.07, t = 0.10, p = 0.92). Finally, and consistent with H4, the interaction between condition and engagement was significant (B = 0.75, SE = 0.21, t = 3.50, p < 0.001). Thus, the effect of gamification on the choice of targeted products was dependent on the engagement level of

Fig. 1. The user interface of the app. *Note:* The picture to the left shows the shopping list where all available offers are visible. The central picture shows the offer discount dialog and the right-most picture shows the quiz dialog.

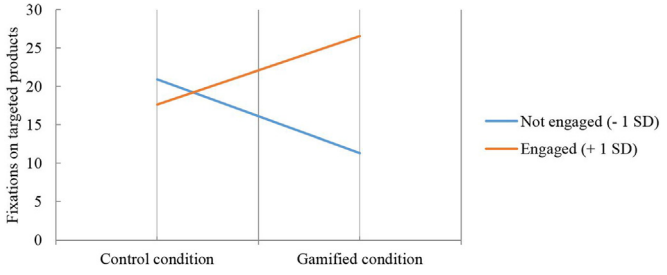

Fig. 2. The interaction effect between engagement and gamification on the number of fixations on the targeted products.

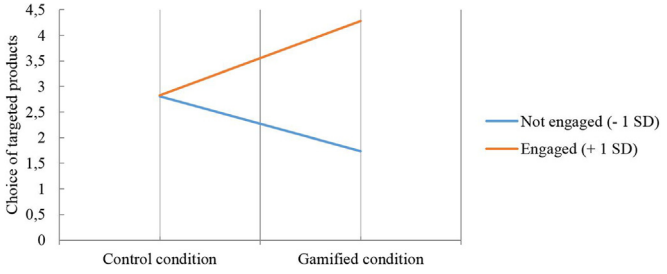

Fig. 3. The interaction effect between engagement and gamification on the number of times targeted products were chosen.

the participants (Fig. 3).

In a subsequent spotlight analysis (Hayes, 2013), minus one and plus one standard deviation from the mean were used to represent low and high values of the moderator variable engagement, respectively. The results show that with high levels of engagement, the condition caused a significant increase (t = 2.25, p = 0.027) in the choice of targeted products; with low levels of engagement, the condition caused a significant decrease (t = -3.81, p < 0.001). In the moderately engaged group, the condition did not cause a significant change (t = -0.19, p = 0.848) in the choice of targeted products.

5. Discussion

Our results show that the participants in the control condition looked at products targeted by an offer significantly more than participants in the gamified condition. This effect could also be seen in the significantly larger disposition to choose a product targeted by an offer in the control condition compared to the gamified condition. Thus, neither H1 nor H2 were supported; on the contrary, the opposite effect occurred. However, both of these effects were moderated by the level of engagement in the gamified shopping task, indicating that gamification becomes more effective when the participants are engaged. Accordingly, H3 and H4 were supported. Thus, the main findings of this research are two-fold: (a) gamification can have a negative effect on mobile advertisement in stores at the point of purchase; but (b) it also shows how the gamifying organisation might mitigate these problems by ensuring that the user of the gamified service is thoroughly engaged.

5.1. Theoretical implications

In a series of experiments, Hildebrand et al. (2014) showed how dealing with a challenge increased the perceived value of an unlocked reward. In the present field experiment, we observed the opposite of Hildebrand et al.'s (2014) findings. It is important to remember that the process of gamification might not always be successful; it can only support the user of a gamified service to create gameful experiences that are needed to reach the targeted outcome behaviour (Huotari and Hamari, 2017). The extent to which gamification is effective in doing so depends partly on the context in which it is used (Hamari et al., 2014). The present study was conducted in a supermarket, which could be the cause of the negative effects of gamification encountered. On a holistic level, reasons for shopping can be described as either utilitarian or hedonic, where utilitarian shopping is product- and task-oriented, while hedonic shopping is oriented towards stimulus seeking (Bellenger and Korgaonkar, 1980; Eroglu and Harrell, 1986; Hirschman and Holbrook, 1982). These motives will affect how the shopping environment will be perceived (Morschett et al., 2005). For example, crowding might be viewed as something negative for the task-oriented customers, who might see many people in the store as a possible threat to effective goal achievement (Eroglu and Harrell, 1986). The playing of games has been described as the overcoming of unnecessary obstacles (Suits, 1978). It seems reasonable that the utilitarian and task-oriented focus of grocery shopping might have been a bad fit with dealing with such unnecessary obstacles. As such, the gamified aspects of the task might have been

interpreted as an obstruction toward the goal of the shopping trip. Furthermore, the extended time a gamified task might take, or may threaten to take, could have had a negative impact on the participants. Grocery shopping is arguably the most stressful type of shopping (Aylott and Mitchell, 1999), due, among other things, to a lack of time (Aylott and Mitchell, 1999; Fram and Ajami, 1994). Thus, the game aspects of the task might just have added to this stressfulness. Engagement has been described as a process: it has a beginning and an end, and it can be recommenced if the user reengages (O'Brien and Toms, 2008). In line with this description of engagement, both the task orientation and the stress of grocery shopping might have caused the participants to disengage early on while performing the gamified shopping task, or might have kept them from ever engaging in it at all. Instead, the lack of engagement left them not caring – including not caring enough to locate the products that were offered at a discount.

The present study investigated the effect of engagement using behavioural logging in the app. As such, engagement in the shopping task was operationalised as the click-through rate to the discount offers. The results showed that more engagement was associated with an increased tendency to choose the targeted product in the gamified condition, but not in the control condition. This indicates that engagement in gamified shopping tasks is needed for them to be effective. Within digital games research, engagement has been described as being part of how games are experienced (e.g., Brockmyer et al., 2009; Martey et al., 2014; Wiebe et al., 2014). Regarding gamified services, it has been stated that such gameful experiences mediate the effect of gamified activities on the targeted outcome behaviour (Huotari and Hamari, 2017). The present study shows that this engagement dimension of the gameful experience might be better described as a prerequisite for gamification to have an effect on the outcome behaviour, rather than as a mediator. This is in line with theory stating that games demand the active involvement of the player (Huotari and Hamari, 2017), gameful experiences are of a co-creative nature (Ermi and Mäyrä, 2005; Huotari and Hamari, 2017) and value from services are co-created (Vargo and Lusch, 2004, 2008), all of which stress the importance of active participation – thus demanding engagement.

From a choice process perspective, previous research has shown that engagement influences visual attention insofar as higher engagement levels do increase information search and attention (Pieters and Wedel, 2004). In the present study, it was only in the gamified condition that a higher level of engagement was associated with increasing attention towards the adverted product; thus, the findings of Pieters and Wedel (2004) were only partly corroborated. Furthermore, Otterbring et al. (2014) found that in-store marketing only had a limited effect on choice. In the present study, by contrast, the participants that were engaged in the gamified shopping task had an increase in the choice of the advertised product. Since the consideration of engagement level in the advert is a key difference between this study and that of Otterbring et al. (2014), a possible conclusion is that gamification offers a way to enhance the effectiveness of in-store marketing, at least to the extent that the gamifying retailer manages to engage the customer.

5.2. Practical implications

Earlier research that has found positive results of gamification on purchase behaviour (Hildebrand et al., 2014; Müller-Stewens et al., 2017) differs from this study in terms of context of implementation. The present study was conducted in a physical grocery store. Since grocery shopping is task-driven and stressful (Aylott and Mitchell, 1999), the implemented quiz-based challenge might just have been experienced as an interference that added to an already stressful situation. It seems reasonable that the easiest way of avoiding these problems would be to never make customers feel pushed into a gamified activity. Consequently – and also in accordance with the motivational aspects of autonomy (Ryan and Deci, 2000) – always allowing customers to actively opt into gamified activities would be a first step towards increasing engagement in gamified shopping tasks. As the results of this study indicate, this is needed for gamification to work well within a grocery store context.

5.3. Limitations and future research

The setting for this study (a supermarket) is a strength in terms of ecological validity, but could also be viewed as a weakness. As playing games can be described as overcoming unnecessary obstacles (Suits, 1978), the utilitarian focus of grocery shopping might be a bad fit with gamification. Accordingly, the setting might have explained the negative results that gamification had in this study. As such, a follow-up study in a context with hedonically focused customers would be valuable.

Hypothetical shopping lists have been used in earlier research on choice tasks (e.g., Otterbring et al., 2014). However, this means that the products on the list will probably not be important for the participants. A related limitation is that the discount offers were not real. Since there was no real value in the offer for the participants, there was no actual value to augment in the gamified group. Even though these are limitations to the present study, it is important to point out that research on effort and its effect on decisions have often used unattractive rewards; for example, Loewenstein and Issacharoff (1994) used mugs. That being said, a shopping list created with products that are relevant to the participants, using real offers, would be a great contribution to the understanding of in-store gamified advertising.

The moderator engagement was not experimentally manipulated. Thus, no inferences can be made regarding the causal relationships between engagement and the dependent variables, and it is also not possible to rule out that there are confounding variables which could have explained the effect of engagement. Furthermore, it seems reasonable that the participants in this study are not the same type of customers who would opt in on a real gamified task. Consequently, the used convenience sample might have contributed to the partly negative view of gamification depicted in this study.

The results of this study showcase how gamification affects customers during a shopping task and how this effect might be negative for the implementing company. However, due to the intrinsically motivating aspects of gamified services (Hamari et al., 2014; Huotari and Hamari, 2017; Mora et al., 2015; Rigby, 2015; Seaborn and Fels, 2015), general app usage could increase due to this general appeal towards customers. The present study does not engage with this general tendency to use the app; it only shows how engagement is necessary in order for gamification to be used as an efficient marketing tool during a specific type of task.

Conflicts of interest

None.

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