SHOPPING APP FEATURES: INFLUENCING THE DOWNLOAD AND USE INTENTION

Kathrin Sinemus* and Stephan Zielke

Walbusch Chair of Multi-Channel-Management, University of Wuppertal, Wuppertal, Germany

*University of Wuppertal, Gaußstr. 20, 42119 Wuppertal, Germany

Sinemus@wiwi.uni-wuppertal.de, Tel.: +49 202 4395310

This is an Accepted Manuscript of an article published by Emerald Publishing Limited in the International Journal of Retail & Distribution Management on 30/05/2022, available online: https://www.emerald.com/insight/content/doi/10.1108/IJRDM-10-2021-0488/full/html.

Citation: Sinemus, K. and Zielke, S. (2022), "Shopping app features: influencing the download and use intention", International Journal of Retail & Distribution Management, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJRDM-10-2021-0488.

SHOPPING APP FEATURES: INFLUENCING THE DOWNLOAD AND USE INTENTION

Abstract

Purpose: Shopping apps are a highly relevant channel and an increasingly important part of omni-channel retailing, as they strengthen the customer relationship. This study analyses the possibilities available to retailers to encourage consumers to download a shopping app and use it in the long-term.

Design/methodology/approach: The study uses a scenario-based online experiment with a 2x2x2 between-subjects design and data from 332 participants. A second online experiment with a 2x3 between-subjects design and data from 200 participants supplements the main experiment. The data obtained from these experiments was analysed using M/ANCOVA and PROCESS.

Findings: Findings suggest that a rebate (monetary incentive) increases the download intention. Online and in-store app features (non-monetary incentives) do also have positive impacts on the use intention, though the in-store feature only works when it is offered in combination with the online feature. The relationships are mediated by the perceived usefulness of the shopping app. Moreover, the non-monetary features interact with the channel preference of the consumers, who react more positively towards features offered in a non-preferred channel. A supplementary study supports this finding.

Originality/value: This research is novel as it analyses the impact of monetary (rebate) and non-monetary (online and in-store features) incentives on both the download and use intention of a shopping app separately. Further, it contributes to research on the topic by examining which features consumers perceive as useful. Finally, the study considers the omni-channel environment regarding consumers' channel preference.

Keywords: Shopping apps, app features, download intention, intention to use, multi-channel, consumer channel preference

Paper type: Research paper

Introduction

In times of omni-channel-retailing, more and more companies are launching mobile (shopping) applications ("app" or "apps" hereafter) to engage customers (Boyd *et al*., 2019). Shopping apps are defined as mobile apps which are edited and branded by a specific retailer (Bang *et al*., 2013) and serve as an additional sales channel alongside the brick-and-mortar channel and traditional e-commerce (Peng *et al*., 2014; Taylor and Levin, 2014). The core element of a shopping app is usually a shop function that is similar to the online store (Bang *et al*., 2013; Kim *et al*., 2017a). However, shopping apps can also include a number of additional features (Kim *et al*., 2016), e.g. Hennes & Mauritz (H&M) offers an online magazine, a QR code and barcode reader, a social media connection and a store finder.

Retailers use shopping apps to get in touch with their customers, to strengthen the customer relationship (Peng *et al*., 2014; Taylor and Levin, 2014), to communicate personally with the consumer (Andrews *et al*., 2016; Natarajan *et al*., 2017; Park and Lee, 2017; Shankar *et al*., 2010) and to track data from consumers' smartphones, for example location-based information (Andrews *et al*., 2016; Berman, 2016). These mobile apps thus offer retailers several benefits. Therefore, it is not surprising that the number of mobile apps is growing rapidly (Peng *et al*., 2014).

Most of the recent literature focuses on the intention to use mobile apps. According to Kim et al. (2016), the usage of a specific app may depend on its features. Consequently, it is highly important to examine which features consumers perceive as useful and thereby influence usage intentions, as suggested by the Technology Acceptance Model (TAM) (Davis *et al*., 1989). However, there is little research analysing influencing factors of the download intention. This topic is eminently relevant as it is not possible to use a mobile app without downloading it first (Peng *et al*., 2014; Wang, 2017). With our study, we want to close the research gap regarding retailers' possibilities, in form of sales promotions, to encourage consumers to download a shopping app and subsequently use it in the long-term. We examine the retailer's possibility of advertising the shopping app on the online shop website, as this increases the likelihood that consumers adopt mobile apps (Taylor and Levin, 2014).

As previous literature has shown, sales promotion can be subdivided into monetary and non-monetary promotions (Buil *et al*., 2013; Büttner *et al*., 2012; Palazon and Delgado-Ballester, 2009). Similarly, we distinguish between monetary and non-monetary incentives to download and use a shopping app. To explore the effects of monetary incentive we use a rebate that has a short-term effect on consumers' behaviour (see Yi and Yoo, 2011). For non-

monetary incentives we examine the effects of advertising shopping app features which do not provide direct monetary benefits (Büttner *et al.*, 2012). Non-monetary incentives may have a long-term effect on consumers' behaviour as the features are a part of the shopping app. We consider these incentive types in order to determine whether a discount is necessary to encourage consumers to a download or whether app features themselves are the decisive benefit that translates into downloads. Thus, our study aims to reveal which type of incentive is most effective for increasing the intention to download (short-term) and subsequent use (long-term). We focus on three types of incentives: rebate (monetary), promotion of an online feature (non-monetary, online magazine) and promotion of an in-store feature (non-monetary, scan and shop function). Furthermore, channel preferences may moderate the impact of non-monetary incentives on the perceived usefulness of the app, as consumers can use these incentives in the online or offline channel.

Hence, our core contribution is to examine the effect of monetary and non-monetary (app features) incentives on the intention to download and to use a shopping app. Particularly, we want to provide a better explanation of what makes consumers download shopping apps and subsequently use them in long-term. Further, this paper contributes to the existing research by extending the TAM and examining which features consumers perceive as useful. Finally, we consider the omni-channel environment by analysing moderating effects of consumers' channel preference for purchase. Our study seeks to answer the following questions:

- How do different types of incentives (monetary and non-monetary, the latter in form of in-store and online-features) influence consumers' intention to download and use shopping apps?
- Does the perceived usefulness of the shopping app moderate effects of the rebate and mediate the effect of the non-monetary incentives on the download and use intention?
- Does consumers' channel preference have a moderating impact on the relationship between the non-monetary incentives and the perceived usefulness of the shopping app?

Theoretical background and research hypotheses

There is a remarkable growth of research on mobile apps (Wang, 2017). Most studies in this field are based on the TAM by Davis et al. (1989) or the Unified Theory of Acceptance and Use of Technology2 (UTAUT2) by Venkatesh et al. (2012). The TAM allows an explanation of user adoption intention of new technologies. While the literature sometimes criticizes the parsimony of the TAM, it does permit the consideration of additional influencing factors (Hong *et al.*, 2017), for example shopping app features in our research context. Consequently,

we think it is a reasonable basic theory for building our research model. In the original TAM, perceived usefulness has a positive effect on behavioural intention (Davis *et al.*, 1989). Previous studies support this relationship in the context of mobile shopping in general (Groß, 2015; Khalifa and Shen, 2008; Ko *et al.*, 2009; Saprikis *et al.*, 2018; Yang, 2012) and mobile apps in particular (Hubert *et al*., 2017; Kim *et al*., 2016; Mehra *et al.*, 2021; Natarajan *et al*., 2017-2018; Roy, 2017; Stocchi *et al.*, 2019). Some studies build on the UTAUT or extend the TAM by factors such as perceived enjoyment (Groß, 2015; Ko *et al.*, 2009; Natarajan *et al*., 2017, 2018; Roy, 2017; Saprikis *et al.*, 2018), social aspects (Chopdar *et al.*, 2018; Kim *et al*., 2016; Hew *et al.*, 2015; Vahdat *et al.*, 2021) or perceived risk (Chopdar *et al*., 2018; Marriott and Williams, 2018; Natarajan *et al*., 2017-2018). A few studies examine factors impacting perceived usefulness, such as social influence (Roy, 2017), quality aspects (Roy, 2017; Sohn, 2017), perceived risk (Hubert *et al*., 2017), trust (Saprikis *et al.*, 2018), app type (Shen, 2015) or perceived ease of use (Hubert *et al*., 2017; Mehra *et al.*, 2021; Roy, 2017; Saprikis *et al.*, 2018).

Overall, most of the existing studies focus on app usage (see also Tang, 2019), while research on the download of an app, especially in the shopping context, is limited. Wang (2017) provides a literature review on determinants of mobile app downloads and concludes that a better explanation of the determinants of consumers download intention is needed. More specific investigations examine how some mobile app characteristics increase app demand, for example file size, in-app advertisements, app description length, number of screenshots, in-app purchase (Ghose and Han, 2014) or the aesthetic design of an app regarding colour, complexity and symmetry (Wang and Li, 2017). Jain and Viswanathan (2015) conducted a qualitative study and found that app features and the design of apps could have an impact on the usage of mobile apps. Stocchi et al. (2019) found a positive influence of app characteristics on the perceived usefulness. However, they did not examine shopping apps. In consequence, there is an overall lack of empirical research regarding shopping app features and their impact on the download and use intention. Table 1 provides an overview of relevant studies on the topic of mobile shopping and mobile shopping apps.

>>>>Table 1: Research on the acceptance of mobile shopping and mobile apps<<<<

There are several researchers investigating perceived usefulness as an important influencing factor of the intention to use a mobile app, while less research focuses on the download. Furthermore, previous literature identifies generic influencing factors and does usually not include particular features of a shopping app. This leads to the question, which features consumers perceive as useful. There is currently of dearth of research on the relationship between such incentives and the download and usage intention of a shopping app.

The effect of a rebate as a monetary incentive

Monetary promotions are a common and effective instrument to attract consumers (Alvarez-Alvarez and Vázquez-Casielles, 2005; Darke and Chung, 2005). According to previous research (e.g. Ataman *et al*., 2010; Yi and Yoo, 2011; Yoo *et al*., 2000), monetary promotions may have a positive effect on consumers' behaviour, especially in the short-term. Therefore, we conclude that a rebate has a positive impact on the download intention of a shopping app, as the download is a one-time occurrence. As argued above, perceived usefulness also has a positive influence on the behavioural intention, which we consider as download intention here. A rebate is not a functional part of a shopping app, therefore it does not influence the usefulness, but the perceived usefulness can increase the impact of a rebate, as the behaviour the rebate aims to motivate becomes more attractive. Thus, we hypothesise:

H1: a) If a retailer promotes a shopping app with a rebate, consumers' download intention will be higher than without a rebate. b) The perceived usefulness of the shopping app positively moderates this relationship.

The effect of an online feature (online magazine) as a non-monetary incentive

Different types of (app) features or services can support consumers in making a purchase decision (Kim *et al.*, 2013). Some of these services are provided in the online channel, while others support offline purchases. Consumers can use online services regardless of their location with an Internet-enabled device, e.g. a smartphone (Gao and Su, 2018). Hence, consumers can use these features wherever they want (Chang, 2015). In addition, retailers also offer online services on their websites, too (Kim *et al.*, 2017a). One example of such a service is an online magazine, which is a common feature of shopping apps (e.g. H&M). The main function of an (online) fashion magazine is informing consumers about the latest fashion trends (McCormick and Livett, 2012). Similar to e-mail marketing (Merisavo and Raulas, 2004), the content of a magazine can include information about products or promotions.

There are various studies investigating the effects of magazines on consumer perceptions and behaviour. Magazines have a significant positive impact on consumers' attitude towards the brand (Colliander and Dahlén, 2011, Flores *et al*., 2008; Merisavo and Raulas, 2004), consumers' purchase intention (Colliander and Dahlén, 2011) and the recommendation rate (Flores *et al*., 2008; Merisavo and Raulas, 2004). As magazines have a positive impact on retailer outcomes, the online magazine can be a powerful example of an online feature integrated in a shopping app.

We conclude that an online feature like a magazine should have a positive effect on the intention to use a retailer's shopping app, as it is a part of it. Further, the advertisement of an online feature can have a positive effect on consumers' download intention, as there is congruence between the incentive and the promoted shopping app as both of them belong to the online channel (Buil *et al*., 2013). In addition, according to the TAM, consumers only use technologies if they consider them as useful. According to Kim et al. (2016) perceived usefulness of information has a positive impact on app usage. Since an online magazine's primary function is informing consumers (McCormick and Livett, 2012), we argue that it has a positive impact on the perceived usefulness and consequently on the intention to use. As it is not possible to use a shopping app without downloading it first (Peng *et al*., 2014; Wang, 2017) the online feature has a positive effect on both the download intention and intention to use through perceived usefulness. Thus, we hypothesise:

H2: a) If a retailer promotes a shopping app with an online feature, the consumers' download intention will be higher than without an online feature. b) The perceived usefulness mediates this relationship.

H3: a) If a retailer promotes a shopping app with an online feature, the consumers' intention to use will be higher than without an online feature. b) The perceived usefulness mediates this relationship.

We further assume that the impact of an online feature like a magazine on the perceived usefulness of a shopping app compared to no magazine depends on channel preferences. Shopping apps are a part of the online channel (Bang *et al*., 2013) and online features such as online magazines are often also offered on retailers' websites (Kim *et al*., 2017a). Online customers might therefore consider such features in the shopping app context to be less useful, as these customers already know similar services from the website. For consumers who prefer the offline channel, the magazine as an online feature is a new function (Van Heerde *et al*., 2019). A magazine can then provide an additional benefit of inspiration (McCormick and Livett, 2012) and thus support offline consumers in making a purchase decision. Consequently, these consumers find an online feature integrated in a shopping app more useful.

We hypothesise:

H4: The impact of an online feature on the perceived usefulness of a shopping app is stronger for consumers with offline channel preference than for consumers with online channel preference.

The effect of an in-store feature (scan and shop function) as a non-monetary incentive

At their core, shopping apps are an online service. However, shopping apps can also offer in-store services, which means that consumers are required to go to a brick-and-mortar store to use them (Gao and Su, 2018). One example of an in-store service or feature integrated in a shopping app is a QR code and barcode reader. One important app feature relying on QR codes is the scan and shop function. For example, if a consumer visits an H&M brick-and-mortar store where an item is not available in the right size, the consumer can scan the barcode with H&M's shopping app to order the desired product. In this way, QR codes combine the offline and online channel (Hagberg *et al*., 2016; Okazaki *et al*., 2012). Such a function enables retailers to offer consumers a convenient way to switch channels without switching to the competition (Strähle and Girwert, 2016). Many retailers recognised this as an opportunity and have integrated a QR code and barcode reader into their shopping apps (e.g. H&M, Esprit or Zalando).

QR codes in advertising have already been the subject of research in the past (e.g. Cata *et al*., 2013; Jung *et al*., 2012). They are a frequently used tool in mobile marketing (Narang *et al*., 2012). However, there is no research investigating whether QR code readers can act as an incentive to download and to use a shopping app. Based on the explained benefits, we argue that consumers see an advantage in using a QR code and barcode reader to support their in-store shopping experience and thus want to use a shopping app that incorporates this in-store feature. A few studies find a positive effect of QR codes on consumers' purchase intention (e.g. Narang *et al*., 2012; Trivedi *et al*., 2020). Analogously, we assume a positive impact of the in-store feature scan and shop function on the intention to download and to use a shopping app. In this context, we also consider the perceived usefulness as a mediator, as consumers only use technologies if they find them useful (according to the TAM). Considering that a download is a prerequisite to using an app (Peng *et al*., 2014; Wang, 2017), we hypothesise:

H5: a) If a retailer promotes a shopping app with an in-store feature, the consumers' download intention will be higher than without an in-store feature. b) The perceived usefulness of the shopping app mediates this relationship.

H6: a) If a retailer promotes a shopping app with an in-store feature, the consumers' intention to use will be higher than without an in-store feature. b) The perceived usefulness of the shopping app mediates this relationship.

According to Narang et al. (2012), a QR code reader should be combined with other marketing tools to increase the purchase intention. The scan and shop function acts as an in-store feature that links the offline environment with the online channel and the online magazine acts as an online feature that can provide stimulation also for

offline purchases. Both features together provide an omni-channel experience where online and offline channels are integrated from different starting points into the customer journey. This is in line with recent omni-channel consumer behaviour, where consumers want to use more than one channel within their shopping process (Kim *et al*., 2017b). Further, Ahn et al. (2004) report for a shopping mall context that online and offline features together generate greater effects on consumer behaviour than they do separately. Consequently, we suggest that customers value such an omni-channel experience. We hypothesise that the scan and shop function positively interacts with the magazine regarding the consumers' intention to download and to use a shopping app:

H7: a) If a retailer promotes a shopping app with an in-store feature, the effect of this feature on the consumers' download intention will be higher for apps that include an online feature (and the other way around). b) The perceived usefulness of the shopping app mediates this relationship.

H8: a) If a retailer promotes a shopping app with an in-store feature, the effect of this feature on the consumers' intention to use will be higher than for apps that also include an online feature (and the other way around). b) The perceived usefulness of the shopping app mediates this relationship.

According to Strähle and Girwert (2016), a scan and shop function combines the offline with the online channel. It increases the attractiveness of offline shopping for customers preferring the online channel because of more convenient information search, availability of more colours and sizes and home delivery. With the help of the scan and shop function, consumers scan selected products in the brick-and-mortar store (offline channel) to view the desired product in the app (online channel). Consequently, the scan and shop function makes it easier for online consumers to use their preferred channel for purchase in an offline environment. Conversely, consumers who prefer the offline channel for purchasing will view the scan and shop function as less useful as it forces them to switch from their preferred channel to their non-preferred channel. Thus, we hypothesise:

H9: The impact of an in-store feature on the perceived usefulness of a shopping app is higher for consumers with online channel preference than for consumers with offline channel preference.

Figure 1 summarises the research model.

>>> >**Figure 1: Research model** <<<<

Method

Data collection and sample

We conducted a scenario-based online experiment with a 2x2x2 (rebate x online magazine x scan and shop function: absent vs. present) between-subjects design, resulting in eight treatment groups, shown in appendix A. The participants were assigned to the groups randomly. The scenario approach is common practice in consumer behaviour research (e.g. Chen *et al.*, 2021; De Vries and Zhang, 2020; Hofenk *et al.*, 2019; Schneider and Zielke, 2021) as it allows manipulations of independent variables and consequently determining cause-effects on the dependent constructs. The scenario approach allows an examination under controlled conditions (Khan, 2011) and is easier to implement than a field experiment. The amount of the discount in the scenarios is 10%, as this is a common value (Büttner *et al.*, 2012).

All participants were asked to imagine that they are searching for a new sweater on a website of a familiar fashion retailer. The participants were then shown a pop-up advertisement for the retailer's shopping app. Depending on the scenario, the retailer promotes different benefits to encourage downloading the shopping app. Afterwards, respondents filled out the questionnaire.

After pre-testing, we collected the data in May 2019 by distributing the online link to the questionnaire via social media and private contacts of European university students. The online survey yielded 332 valid questionnaires (respondents who correctly answered the manipulation check). The average age of respondents is 29 years and 60.2% are female. The representation of younger age groups is larger than in the general population, but acceptable, as the age group between 18 and 34 is the largest group among smartphones users (Deloitte, 2020). Cell sizes range between 30 and 54 (depending on the scenario) and allow a conservative testing of the hypotheses.

Measures

For most of the constructs, we used Likert-type items evaluated on seven-point numerical scales with endpoints ranging from totally disagree to totally agree. The scale measuring perceived usefulness is based on Hubert et al. (2017) and Natarajan et al. (2017). The intention to download and the intention to use the shopping app were measured with single items according to Herhausen et al. (2015), with endpoints ranging from very unlikely to very likely. Moreover, we included three items from Emrich et al. (2015) for a realism check. For channel preference, we used a semantic differential with the endpoints completely online and completely offline, adopted from Emrich et al. (2015) and Shim et al. (2001). For the manipulation check, we asked respondents to indicate which incentives were promoted in the ad (multiple choice). Based on previous research, we considered various covariates that may influence the outcome variables: perceived ease of use (Kim *et al*., 2016, based on Davis *et*

al., 1989), privacy concerns (Bleier and Eisenbeiss, 2015), app enjoyment (Nysveen, 2005) and usage frequency (Davis, 1989). The complete item list is included in appendix B. For data analysis, we first used SPSS to perform a three-way MANCOVA to test the main effects of the independent variables and possible interactions between them. Second, we used PROCESS (Hayes, 2018) to test the proposed mediation and moderation hypotheses regarding the perceived usefulness and channel preference.

Results

Testing of hypotheses

Initial analyses determine internal consistency for all constructs (Cronbach's alpha > .70). A factor analysis further reveals loadings above .70. Hence, the constructs indicate adequate reliability (Loewenthal, 2001). In addition, a realism check shows that the respondents perceived the scenarios as mostly realistic (M=5.71 on a scale ranging from 1 to 7).

The MANCOVA results reveal a significant total model for the download intention ($F(11,312)=22.393$, $p=.000$) and the intention to use ($F(11,312)=20.361$, $p=.000$). The proposed model explains substantial amounts of variance in the download intention ($R^2=.421$) and the intention to use ($R^2=.397$).

For the rebate, results show that it has a positive effect on consumers' download intention (H1a: $F(1,312)=24.304$, $p=.000$; $M_{with\text{-}rebate}=4.03$, $SD=1.93 > M_{w/o\text{-}rebate}=3.20$, $SD=1.75$). This supports H1a. In contrast to our expectations, the MANCOVA also shows a significant effect of the rebate on the use intention ($F(1,324)=8.657$, $p=.003$; $M_{with\text{-}rebate}=3.72$, $SD=1.97 > M_{w/ot\text{-}rebate}=3.10$, $SD=1.76$).

For the online feature (magazine), we find marginally significant positive main effects on the download intention (H2a: $F(1,312)=2.824$, $p=.094$; $M_{with\text{-}online\text{-}feature}=3.65$, $SD=1.99 > M_{w/o\text{-}online\text{-}feature}=3.54$, $SD=1.80$) and the intention to use (H3a: $F(1,312)=2.961$, $p=.086$; $M_{with\text{-}online\text{-}feature}=3.48$, $SD=2.02 > M_{w/o\text{-}online\text{-}feature}=3.33$, $SD=1.78$). This supports H2a and H3a. The main effects hypothesised in H5a and H6a are not significant. There is no significant impact of the in-store feature on the intention to download (H5a: $F(1,312)=.009$, $p=.926$) and the intention to use (H6a: $F(1,312)=.017$, $p=.896$). Regarding the interaction between the online- and in-store feature, there is no significant effect on the download intention (H7a: $F(1,312)=2.400$, $p=.122$), rejecting H7a. However, the interaction effect on the intention to use is significant (H8a: $F(1,312)=4.175$, $p=.042$). Figure 2 shows that consumers' intention to use the shopping app is highest when the app offers both features. When a retailer

promotes the online feature, the effect on the intention to use is positive when an in-store feature is also being promoted. This effect is reversed without promotion of the in-store feature. This supports H8a. The graph of the interaction effect on the intention to use shows a disordinal interaction. Consequently, the main effect of the online feature must be interpreted with caution.

>>>> **Figure 2: Interaction between an online and in-store feature on the intention to use**<<<<

Furthermore, we examine the interaction effect of both features on the perceived usefulness. We found a significant interaction between the online- and in-store feature ($F(10,314)=5.267$, $p=.022$). Figure 3 shows this interaction, indicating that an in-store feature only increases the perceived usefulness when it is combined with an online feature and vice versa.

>>>>**Figure 3: Interaction between an online and in-store feature on perceived usefulness**<<<<

To test the hypothesised mediation and moderation effects regarding perceived usefulness and channel preference, we used Hayes' SPSS macro PROCESS with 5.000 bootstrapping subsamples (model 1 for moderations, model 4 for single mediations and model 8 for moderated mediation). For the moderation of the perceived usefulness on the effect of the rebate on the download intention, we do not find a significant result (H1b: $\beta=-.001$; $p=.985$), rejecting H1b. However, we find support for H2b and H3b. The perceived usefulness mediates both the relationship between the online feature and the download intention (partially standardised indirect effect: $\beta=.081$; 90% CI: .0115 to .1538) and the online feature and the intention to use (partially standardised indirect effect: $\beta=.086$; 95 % CI: .0005 to .1803). The mediating effect of the perceived usefulness is not significant in regard to the in-store feature, neither for the relationship between the in-store feature and the download intention (partially standardised indirect effect: $\beta=.007$; 95% CI: -.0611 to .0758), nor for the relationship between the in-store feature and the intention to use (partially standardised indirect effect: $\beta=.007$; 95% CI: -.0671 to .0783). Hence, H5b and H6b are rejected. However, the effect of the interaction between the online- and in-store feature on the download intention is significantly mediated by the perceived usefulness (index moderated mediation: $\beta=.367$; 95% CI: .0616 to .6815). Also, the effect of this interaction on the intention to use is significantly mediated by the perceived usefulness (index moderated mediation: $\beta=.386$; 95% CI: .0646 to .7188). Hence, H7b and H8b are supported. Regarding the moderation, we find a marginally significant effect of the interaction ($\beta=.180$; $p=.062$) between the online feature and the channel preference on the perceived usefulness. Figure 4 shows that the online feature increases perceived usefulness only for consumers who prefer the offline channel, which supports H4. The opposite is true for the interaction between the in-store feature and the channel preference ($\beta=-.189$; $p=.047$).

Figure 5 shows that only consumers who prefer the online channel find a shopping app that includes an in-store feature more useful than an app without this feature. This supports H9.

>>>>Figure 4: Interaction between an online feature and consumers' channel preference on the perceived usefulness<<<<

>>>>Figure 5: Interaction between an in-store feature and consumers' channel preference on the perceived usefulness<<<<

Table 2 summarises the results of hypotheses testing.

>>>> Table 2: Results of hypotheses testing<<<<

Follow-up study

The main study found that perceived usefulness plays an important mediating role in our research model. Furthermore, the observed interaction effects between features and channel preference and between online and in-store features on the perceived usefulness provide interesting insights. We therefore conducted a follow-up study to validate these findings. We investigate whether targeted advertising of different features in consumers' preferred sales channels leads to different perceptions of the usefulness of the shopping app. Such advertising could be a strategy for retailers to promote their shopping apps.

Research design and sample description

In the follow-up study, we used the same research design as in the main study with a few adjustments. We substituted the online feature magazine by the online feature availability check. This feature enables consumers to check the availability of products in a physical store online (Gao and Su, 2018; Herhausen *et al.*, 2015), i.e. consumers use the function online through the shopping app before switching to the brick-and-mortar store for purchasing. It is further a common feature in shopping apps (e.g. Esprit, H&M or Mango). For the in-store feature, we used the scan and shop function, that consumers' use in-store before switching to the online channel. Consequently, customers use the availability check and the scan and shop function in exactly opposite situations. We conducted a scenario-based online experiment with 2 (channel preference) x 3 (online feature, in-store feature, both) between-subjects design. In the scenario, the participants first selected one out of six multi-channel retailers where they like to purchase. Then, we asked respondents for their channel preference and depending on their

answer, we asked them to imagine going to the physical store or visiting the online shop of the selected retailer where they see an ad. Then, we displayed the advertisement promoting the different features (randomly selected). Afterwards, respondents filled the questionnaire with the same questions regarding perceived usefulness of the retailer's app and covariates (see appendix B). We extended covariates by attitude towards the retailers' app (Bergkvist and Rossiter, 2007) and brand loyalty (Yi and Jeon, 2003). We analysed data using ANCOVA with LSD post-hoc tests.

After pre-testing, we used the same procedure for data collection as in the main study. The online survey yielded 200 valid questionnaires. The average age of respondents is 29 years and 59.5% are female. Cell sizes[1] range between 10 and 65 (depending on the scenario). We integrated manipulation checks, which we measured on a seven-point Likert scale ranging from totally disagree to totally agree. The manipulation checks show significant differences between the groups ($p<.05$), indicating successful manipulation. A realism check indicated that the participants perceived the described scenarios as mostly realistic (M=5.58 on a scale ranging from 1 to 7).

Results

Results show that feature types have a marginally significant impact on consumers' perceived usefulness of a shopping app for both consumers with online channel preference ($F(2,27)=2.816$, $p=.077$) and consumers with offline channel preference ($F(2,155)=2.575$, $p=.079$). Post-hoc tests show that participants with an online channel preference perceive a shopping app with both features (M=5.12) more useful than an app with a single feature ($M_{online\text{-}feature}=4.29$, $p=.032$; $M_{in\text{-}store\text{-}feature}=4.37$, $p=.074$). Participants with an offline channel preference only perceive a shopping app with both features significantly more useful compared to an app with an in-store feature ($M_{both}=3.81$; $M_{online\text{-}feature}=3.48$, $p=.137$; $M_{in\text{-}store\text{-}feature}=3.35$, $p=.030$). Regarding the interaction between feature type and channel preference, we did not observe significant results. However, mean values indicate at least that consumers with an online channel preference perceive a shopping app with an in-store feature (M=4.37) more useful than with an online feature (M=4.29). Conversely, consumers with an offline channel preference perceive a shopping app with an online feature (M=3.48) more useful than with an in-store feature (M=3.34).

[1] The different group sizes result from the channel preferences: 35 participants have an online preference and 163 an offline channel preference.

Discussion

Using an experimental approach, this study aims to investigate effects of monetary (in the form of a rebate) and non-monetary (in the form of an online feature and an in-store feature) incentives on consumers' download intention and intention to use a shopping app. The results indicate that a rebate positively influences the download intention, which is in line with prior research (Ataman *et al.*, 2010; Yi and Yoo, 2011; Yoo *et al.*, 2000). Contrary to our expectations, the interaction effect between the rebate and the perceived usefulness on the download intention is not significant, indicating that consumers respond to the rebate irrespective of the usefulness of app features. An additional analysis shows that the rebate has a positive impact on the intention to use. These results indicate that the mere availability of an app (after downloading) stimulates its usage, irrespective of the usefulness. As prior research has shown that a monetary incentive has mainly a short-term effect (see Yi and Yoo, 2011), it remains questionable whether consumers' intentions will translate to long-term usage. It is conceivable that consumers only use the app in the long-term if rebates are regularly offered via the app.

In contrast to our expectations, only the online feature has a main effect on the download intention and the intention to use. However, the importance of the in-store feature in the form of a scan and shop function may have increased during the COVID-19 pandemic as consumers become more familiar with this function. Restaurants, museums etc. use the QR code technology for registration. This has made the use of QR codes for shopping a realistic option for consumers in the future. Further, the results show a significant interaction effect between both features on the intention to use. This result supports Narang et al.'s (2012) advice to combine the QR code reader with further tools. The relationships are mediated by the perceived usefulness. Hence, if a shopping app offers a combination of features that allows consumers to switch between channels in any direction and experience a seamless shopping experience, consumers find the app useful and use it in the long-term. This result is supported by the follow-up study as consumers perceive a shopping app with both features as more useful than one with only a single feature.

Furthermore, single non-monetary features have effects for customer segments with certain channel preferences. The in-store feature allows customers to switch to the online channel while being in-store. Results show that consumers preferring the online channel, find a shopping app with this in-store feature more useful. The opposite effect exists for the online feature that provides additional inspiration for offline purchases (but not necessarily for online purchases, as the magazine is usually also integrated in the regular website). Results show that consumers preferring the offline channel find a shopping app with an online feature more useful, as it offers an

online feature that supports their offline purchases. Hence, supporting our assumption, consumers react positively to features offered in a non-preferred channel that support the shopping processes in their preferred channel. Our follow-up study supports these results as a tendency, however, the interaction between the channel preference and the features was not significant.

Management implications

Results show that a rebate is indeed conducive for stimulating downloads, which is in line with prior research (e.g. Alvarez-Alvarez and Vázquez-Casielles, 2005). Therefore, a rebate could be a good instrument for retailers to motivate consumers to adopt an additional mobile channel as a first step. However, as the rebate only increases the download intention without affecting the perceived usefulness, retailers would do well to consider other, non-monetary incentives in their long-term strategy that are perceived as useful and thus also increase usage of the shopping app. The download is only the first step (Peng *et al.*, 2014; Wang, 2017). The promotion of features within the app after the download via push-messages might be a good instrument to make the long-term app usage more attractive for the consumer. The results further indicate that an online magazine as online feature can be a useful feature on its own, while the scan and shop as an in-store feature should be offered in combination with the online feature. Retailers should therefore offer packages of online and in-store features that support channel switching in any direction. They should further promote these features more specifically to the relevant target customers. Consumers favouring the offline channel find a shopping app with an online feature more useful than consumers favouring the online channel do. Hence, the retailer can promote the online magazine to offline customers (e.g. in store flyers). As consumers who prefer the online channel find a shopping app with an in-store feature more useful than consumers who prefer the offline channel, retailers should promote the scan and shop function in their online shops or newsletters. As a side effect, this may also bring online customers to the stores (with great opportunities for cross- and upselling). When customers with strong preferences for the online channel visit a store, the scan and shop function is also a chance for retailers to keep these customers in their own channels and to prevent competitive showrooming.

Theoretical contribution

From a theoretical point of view, our study extends the existing literature in several ways. Firstly, the literature review has shown that prior research focused on generic influencing factors on the perceived usefulness of a shopping app (e.g. Hubert *et al.*, 2017; Roy, 2017; Stocchi *et al.*, 2019). We shed light on the effects of specific

features of a shopping app, with direct implications for the app design. Secondly, prior research has mostly addressed the adoption of apps, usually without differentiating between the download intention and intention to use. Such a differentiated view is important as stimulating a download is only a first step (Peng *et al*., 2014; Wang, 2017) in creating positive effects on customer loyalty through app usage. Thirdly, our results show that research would gain much by not analyse the impact of app features in isolation, as the combined effect of an app package differs from the sum of direct effects of single features. The results particularly highlight that a package of app features should create a seamless shopping experience across channels from any starting point in the customer's shopping journey. Fourthly, this research highlights the importance of considering channel preferences when analysing effects of shopping app features. It shows that customers react more positively towards features offered in a non-preferred channel which support purchases in preferred channels.

Limitations and future research

This research has some limitations that offer opportunities for further research. Firstly, our scenarios focus on the fashion industry. A cross-industry analysis could test the generalisability of our results, as it is possible that the usefulness of specific features differs between industries. Secondly, we analyse only three non-monetary incentives. Future research could integrate additional features, for example social media elements. Thirdly, future research could shed more light on the moderating role of personal characteristics and demographics, such as innovativeness or gender. Retailers can use such information to personalise promotions related to particular app features. Fourthly, we conducted a scenario-based experiment. Further research could examine the robustness of our finding in a real-life setting. Finally, cell sizes in the follow-up study only allow an interpretation of tendencies.

Conclusion

This research shows that a rebate is a good instrument for stimulating app downloads. Nevertheless, the app design also plays an important role, as especially the combination of different app features positively influences customers' use intention. The first study suggests that a rebate (monetary incentive) increases the download intention. Online- and in-store app features (non-monetary incentives) have positive impacts on the use intention. However, the in-store feature only has an impact when it is offered in combination with the online feature. The perceived usefulness of the shopping app mediates the observed effects. However, it does not moderate the effect of the rebate on the download intention. Moreover, the non-monetary features interact with the channel preference of the consumers, who react more positively towards features offered in a non-preferred channel. This means that

consumers who prefer the online channel appreciate the in-store feature as it guides them to their preferred purchase channel. Offline consumers prefer the online feature as it prepares them for their in-store purchase, for example by inspiration or reduction of availability risks. The follow up study supports these findings. Both consumer types, online and in-store consumers, perceive a shopping app with both features as more useful compared to apps with a single feature. Further, the results imply that consumers with an online channel preference prefer a shopping app with an in-store feature compared to an app with an online feature. The reverse holds for consumers with an offline channel preference. In summary, shopping app features are an excellent instrument for retailers to encourage customers to use their app in the long-term.

Declaration of interest statement

On behalf of all authors, the corresponding author states that there is no conflict of interest.

References

Ahn, T., Ryu, S. and Han, I. (2004), "The impact of the online and offline features on the user acceptance of Internet shopping malls", *Electronic Commerce Research and Applications*, Vol. 4, pp.405-420. doi:10.1016/j.elerap.2004.05.001.

Alvarez-Alvarez, B. and Vázquez-Casielles, R. (2005), "Consumer evaluations of sales promotion: the effect on brand choice", *European Journal of Marketing*, Vol. 39 No. 1/2, pp.54-70. doi:10.1108/03090560510572016.

Andrews, M., Goehring, J., Hui, S., Pancras, J. and Thornswood, L. (2016), "Mobile promotions: a framework and research priorities", *Journal of Interactive Marketing*, Vol. 34 No. 1, pp.15-24. doi:10.1016/j.intmar.2016.03.004.

Ataman, M.B., Van Heerde, H.J. and Mela, C.F. (2010), "The long-term effect of marketing strategy on brand sales", *Journal of Marketing Research*, Vol. 47 No. 5, pp.866-882. doi:10.1509/jmkr.47.5.866.

Bang, Y., Han, K., Animesh, A. and Hwang, M. (2013), "From online to mobile: linking consumers' online purchase behaviors with mobile commerce adoption", in *Proceedings of the 17th Pacific Asia Conference on Information Systems (PACIS)*, Association for Information Systems (AIS) Electronic Library (AISeL), Jeju Island, Korea 18-22 June. https://aisel.aisnet.org/pacis2013/128/.

Bergkvist, L. and Rossiter, J.R. (2007), "The predictive validity of multi-item versus single-item measures of the same constructs", *Journal of Marketing Research*, Vol. 44 No. 2, pp.175-184. doi:10.1509/jmkr.44.2.175.

Berman, B. (2016), "Planning and implementing effective mobile marketing programs", *Business Horizons*, Vol. 59 No. 4, pp.431-439. doi:10.1016/j.bushor.2016.03.006.

Bleier, A. and Eisenbeiss, M. (2015), "The importance of trust for personalized online advertising", *Journal of Retailing*, Vol. 91 No. 3, pp.390-409. doi:10.1016/j.jretai.2015.04.001.

Boyd, D. E., Kannan, P. K. and Slotegraaf, R.J. (2019), "Branded apps and their impact on firm value: a design perspective." *Journal of Marketing Research*, Vol. 56 No. 1, pp.76-88. doi:10.1177/0022243718820588.

Buil, I., de Chernatony, L. and Montaner, T. (2013), "Factors influencing consumer evaluations of gift promotions", *European Journal of Marketing*, Vol. 47 No. 3/4, pp.574-595. doi:10.1108/03090561311297463.

Büttner, O.B., Florack, A. and Göritz, A.S. (2012), "How shopping orientation influences the effectiveness of monetary and nonmonetary promotions", *European Journal of Marketing*, Vol. 49 No. 1/2, pp.170-189. doi:10.1108/EJM-01-2012-0044.

Cata, T., Patel, P.S. and Sakaguchi, T. (2013), "QR code: A new opportunity for effective mobile marketing", *Journal of Mobile Technologies, Knowledge and Society*, pp.1-7. doi:10.5171/2013.748267.

Chang, C.-C. (2015), "Exploring mobile application customer loyalty: the moderating effect of use contexts.", *Telecommunications Policy*, Vol. 39 No. 8, pp. 678-690. doi:10.1016/j.telpol.2015.07.008.

Chen, J.V., Ruangsri, S., Ha, Q.-A. and Widjaja, A.E. (2021), "An experimental study of consumers' impulse buying behaviour in augmented reality mobile shopping apps", *Behaviour & Information Technology*. doi:10.1080/0144929X.2021.1987523.

Chopdar, P., Korfiatis, N. and Lytras, M. (2018), "Mobile shopping apps adoption and perceived risks: a cross-country perspective utilizing the unified theory of acceptance and use of technology", *Computers in Human Behavior*, Vol. 86, pp.109-128. doi:10.1016/j.chb.2018.04.017.

Colliander, J. and Dahlén, M. (2011), "Following the fashionable friend: the power of social media weighing publicity effectiveness of blogs versus online magazines", *Journal of Advertising Research*, Vol. 51 No. 1, pp.313-320. doi:10.2501/JAR-51-1-313-320.

Darke, P.R. and Chung, C.M.Y. (2005), "Effects of pricing and promotion on consumer perceptions: it depends on how you frame it", *Journal of Retailing*, Vol. 81 No. 1, pp.35-47. doi:10.1016/j.jretai.2005.01.002.

Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, Vol. 13 No. 3, pp.319-340. doi:10.2307/249008.

Davis, F.D., Bagozzi, R.P. and Warshaw P.R. (1989), "User acceptance of computer technology: a comparison of two theoretical models", *Management Science*, Vol. 35 No. 8, pp.982-1003. doi:10.1287/mnsc.35.8.982.

De Vries, E.L.E. and Zhang, S. (2020), "The effectiveness of random discounts for migrating customers to the mobile channel", *Journal of Business Research*, Vol. 110, pp.272-281. doi:10.1016/j.jbusres.2020.01.041.

Deloitte, (2020), "Digital usage & COVID 19", available at: https://www2.deloitte.com/ie/en/pages/technology-media-and-telecommunications/articles/digital-consumer-trends/digital-consumer-trends-digital-usage.html (accessed 05 January 2022).

Emrich, O., Paul, M. and Rudolph, T. (2015), "Shopping benefits of multichannel assortment integration and the moderating role of retailer type", *Journal of Retailing*, Vol. 91 No. 2, pp.326-342. doi:10.1016/j.jretai.2014.12.003.

Flores, L., Müller, B., Agrebi, M. and Chandon, J.-L. (2008), "The branding impact of brand websites: do newsletters and consumer magazines have a moderating role?", *Journal of Advertising Research*, Vol. 48 No. 3, pp.465-472. doi:10.2501/S0021849908080471.

Gao, F. and Su, X. (2018), "Omnichannel service operations with online and offline self-order technologies", *Management Science*, Vol. 64 No. 8, pp.3595-3608. doi:10.1287/mnsc.2017.2787.

Ghose, A. and Han, S.P. (2014), "Estimating demand for mobile applications in the new economy", *Management Science*, Vol. 60 No. 6, pp.1470-1488. doi:10.1287/mnsc.2014.1945.

Groß, M. (2015), “Exploring the acceptance of technology for mobile shopping: an empirical investigation among Smartphone users”, *The International Review of Retail, Distribution and Consumer Research*, Vol. 25 No. 3, pp. 215-235. doi:10.1080/09593969.2014.988280.

Hagberg, J., Sundström, M. and Egels-Zandén, N. (2016), “The digitalization of retailing: an exploratory framework”, *International Journal of Retail & Distribution Management*, Vol. 44 No. 7, pp.694-712. doi:10.1108/IJRDM-09-2015-0140.

Hayes, A.F. (2018), “*Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*”, Guilford, New York, NY.

Herhausen, D., Binder, J., Schoegel, M. and Herrmann, A. (2015), “Integrating bricks with clicks: retailer-level and channel-level outcomes of online–offline channel integration”, *Journal of Retailing*, Vol. 91 No. 2, pp.309-325. doi:10.1016/j.jretai.2014.12.009.

Hew, J-J., Lee, V.-H., Ooi, K.-B. and Wei, J. (2015), “What catalyses mobile apps usage intention: an empirical analysis”, *Industrial Management & Data Systems*, Vol. 115 No. 7, pp.1269-1291. doi:10.1108/IMDS-01-2015-0028.

Hofenk, D., van Birgelen, M., Bloemer, J. and Semeijn, J. (2019), “How and when retailers’ sustainability efforts translate into positive consumer responses: The interplay between personal and social factors”, *Journal of Business Ethics*, Vol. 156 No. 2, pp.473-492. doi:10.1007/s10551-017-3616-1.

Hong, S.-J., Thong, J.Y.L. and Tam, K.Y. (2006), “Understanding continued information technology usage behavior: a comparison of three models in the context of mobile internet”, *Decision Support Systems*, Vol. 42 No. 3, pp.1819-1834. doi:10.1016/j.dss.2006.03.009.

Hubert, M., Blut, M., Brock, C., Backhaus, C. and Eberhardt, T. (2017), “Acceptance of smartphone-based mobile shopping: mobile benefits, customer characteristics, perceived risks, and the impact of application context”, *Psychology & Marketing*, Vol. 34 No. 2, pp.175-194. doi:10.1002/mar.20982.

Jain, V. and Viswanathan, V. (2015), “Choosing and using mobile apps: A conceptual framework for Generation Y”, *Journal of Customer Behaviour*, Vol. 14 No. 4, pp.295-309. doi:10.1362/147539215X14503490289305.

Jung, J.-H., Somerstein, R. and Kwon, E.S. (2012), "Should I scan or should go?: young consumers' motivations for scanning QR code advertising", *International Journal of Mobile Marketing*, Vol. 7 No. 3, pp.25-37. https://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=f7a4b0c0-8e8b-428d-930d-19d96290d8bf%40sessionmgr103.

Khalifa, M. and Shen, K.N. (2008), "Explaining the adoption of transactional B2C mobile commerce", *Journal of Enterprise Information Management*, Vol. 21 No. 2, pp.110-124. doi:10.1108/17410390810851372.

Khan, J. (2011), "Validation in marketing experiments revisited", *Journal of Business Research*, Vol. 64 No. 7, pp.687-692. doi:10.1016/j.jbusres.2010.08.009.

Kim, M., Kim, J., Choi, J. and Trivedi, M. (2017a), "Mobile shopping through applications: understanding application possession and mobile purchase", *Journal of Interactive Marketing*, Vol. 39, pp.55-68. doi:10.1016/j.intmar.2017.02.001.

Kim, E., Park, M.-C. and Lee, J. (2017b), "Determinants of the intention to use buy-online, pickup in-store (BOPS): the moderating effects of situational factors and product type", *Telematics and Informatics*, Vol. 34 No. 8, pp.1721-1735. doi:10.1016/j.tele.2017.08.006.

Kim, S.C., Yoon, D. and Han, E.K. (2016), "Antecedents of mobile app usage among smartphone users", *Journal of Marketing Communications*, Vol. 22 No. 6, pp.653-670. doi:10.1080/13527266.2014.951065.

Kim, E., Lin, J.-S. and Sung, Y. (2013), "To app or not to app: engaging consumers via branded mobile apps", *Journal of Interactive Advertising*, Vol. 13 No. 1, pp. 53-65. doi:10.1080/15252019.2013.782780.

Ko, E., Kim, E.Y. and Lee, E.K. (2009), "Modeling consumer adoption of mobile shopping for fashion products in korea", *Psychology & Marketing*, Vol. 26 No.7, pp. 669-687. doi:0.1002/mar.

Loewenthal, K.M. (2001), *An Introduction to Psychological Tests and Scales*, 2nd ed., Psychology Press, London.

Marriott, H.R. and Williams, M.D. (2018), "Exploring consumers perceived risk and trust for mobile shopping: A theoretical framework and empirical study", *Journal of Retailing and Consumer Services*, Vol. 42, pp.133-146. doi:10.1016/j.jretconser.2018.01.017.

McCormick, H. and Livett, C. (2012), "Analysing the influence of the presentation of fashion garments on young consumers' online behaviour", *Journal of Fashion Marketing and Management*, Vol. 16 No. 1, pp.21-41. doi:10.1108/13612021211203014.

Mehra, A., Paul, J. and Kaurav, R.P.S. (2021), "Determinants of mobile apps adoption among young adults: theoretical extension and analysis", *Journal of Marketing Communications*, Vol. 27 No. 5, pp.481-509. doi:10.1080/13527266.2020.1725780.

Merisavo, M. and Raulas, M. (2004), "The impact of e-mail marketing on brand loyalty", *Journal of Product & Brand Management*, Vol. 13 No. 7, pp.498-505. doi:10.1108/10610420410568435.

Narang, S., Jain, V. and Roy, S. (2012), "Effect of QR codes on consumer attitudes", *International Journal of Mobile Marketing*, Vol. 7 No. 2, pp.52-64. https://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=89db7460-3f12-4d20-8c92-85cbab84ce89%40sdc-v-sessmgr01.

Natarajan, T., Balasubramanian, S.A. and Kasilingam, D.L. (2018), "The moderating role of device type and age of users on the intention to use mobile shopping applications", *Technology in Society*, Vol. 53, pp.79-90. doi:10.1016/j.techsoc.2018.01.003.

Natarajan, T., Balasubramanian, S.A. and Kasilingam, D.L. (2017), "Understanding the intention to use mobile shopping applications and its influence on price sensitivity", *Journal of Retailing and Consumer Services*, Vol. 37, pp.8-22. doi:10.1016/j.jretconser.2017.02.010.

Nysveen, H., Pedersen, P.E. and Thorbjørnsen, H. (2005), "Intentions to use mobile services: antecedents and cross-service comparisons", *Journal of the Academy of Marketing Science*, Vol. 33 No. 3, pp.330-346. doi:10.1177/0092070305276149.

Okazaki, S., Li, H. and Hirose, M. (2012), "Benchmarking the use of QR code in mobile promotion: three studies in Japan", *Journal of Advertising Research*, Vol. 52 No. 1, pp.102-117. doi:10.2501/JAR-52-1-102-117.

Palazon, M. and Delgado-Ballester, E. (2009), "Effectiveness of price discounts and premium promotions", *Psychology & Marketing*, Vol. 26 No. 12, pp.1108-1129. doi:10.1002/mar.20315.

Park, S. and Lee, D. (2017), “An empirical study on consumer online shopping channel choice behavior in omni-channel environment”, *Telematics and Informatics*, Vol. 34 No. 8, pp.1398-1407. doi:10.1016/j.tele.2017.06.003.

Peng, K.-F., Chen, Y. and Wen, K.-W. (2014), “Brand relationship, consumption values and branded app adoption”, *Industrial Management & Data Systems*, Vol. 114 No. 8, pp.1131-1143. doi:10.1108/IMDS-05-2014-0132.

Roy, S. (2017), “App adoption and switching behavior: applying the extended tam in smartphone app usage”, *Journal of Information Systems and Technology Management*, Vol. 14 No. 2, pp.239-261. doi:10.4301/s1807-17752017000200006.

Saprikis, V., Markos, A., Zarmpou, T. and Vlachopoulou, M. (2018), “Mobile shopping consumers’ behavior: An exploratory study and review”, *Journal of Theoretical and Applied Electronic Commerce Research*, Vol. 13 No. 1, pp.71-90. doi:10.4067/S0718-18762018000100105.

Schneider, P.J. and Zielke, S. (2021), “Price versus service: Can retailers beat showrooming with competence?”, *Journal of Retailing and Consumer Services*, Vol. 61. doi:10.1016/j.jretconser.2021.102592.

Shankar, V., Venkatesh, A., Hofacker, C. and Naik, P. (2010), “Mobile marketing in the retailing environment: current insights and future research avenues”, *Journal of Interactive Marketing*, Vol. 24 No. 2, pp.111-120. doi:10.1016/j.intmar.2010.02.006.

Shen, G.C.-C. (2015), “Users’ adoption of mobile applications: product type and message framing’s moderating effect”, *Journal of Business Research*, Vol. 68 No. 11, pp. 2317-2321, doi: 10.1016/j.jbusres.2015.06.018.

Shim, S., Eastlick, M.A., Lotz, S.L. and Warrington, P. (2001), “An online prepurchase intentions model: the role of intention to search”, *Journal of Retailing*, Vol. 77 No. 3, pp.397-416. doi:10.1016/S0022-4359(01)00051-3.

Sohn, S. (2017), “A contextual perspective on consumers' perceived usefulness: the case of mobile online shopping”, *Journal of Retailing and Consumer Services*, Vol. 38, pp.22-33. doi:10.1016/j.jretconser.2017.05.002.

Stocchi, L., Michaelidou, N. and Micevski, M. (2019), "Drivers and outcomes of branded mobile app usage intention", *Journal of Product & Brand Management,* Vol. 28 No. 1, pp.28-49. doi:10.1108/JPBM-02-2017-1436.

Strähle, J. and Girwert, F. (2016), "Impact of a fashion fTRACE app on the perception of sustainability", *Journal of International Business Research and Marketing*, Vol. 1 No. 2, pp.7-18. doi:10.18775/jibrm.1849-8558.2015.12.3001.

Tang, A.K.Y. (2019), "A systematic literature review and analysis on mobile apps in m-commerce: implications for future research", *Electronic Commerce Research and Applications*, Vol. 37. doi:10.1016/j.elerap.2019.100885.

Taylor, D.G. and Levin, M. (2014), "Predicting mobile app usage for purchasing and information-sharing", *International Journal of Retail & Distribution Management*, Vol. 42 No. 8, pp.759-774. doi:10.1108/IJRDM-11-2012-0108.

Trivedi, R., Teichert, T. and Hardeck, D. (2020), "Effectiveness of pull-based print advertising with QR codes: role of consumer involvement and advertisement appeal", *European Journal of Marketing*, Vol. 54 No. 1, pp.145-167. doi:10.1108/EJM-06-2018-0383.

Vahdat, A., Alizadeh, A., Quach, S. and Hamelin, N. (2021), "Would you like to shop via mobile app technology? The technology acceptance model, social factors and purchase intention", *Australasian Marketing Journal*, Vol. 29 No. 2, pp.187-197. doi:10.1016/j.ausmj.2020.01.002.

Van Heerde, H.J., Dinner, I.M. and Neslin, S.A. (2019), "Engaging the unengaged customer: the value of a retailer mobile app", *International Journal of Research in Marketing*, Vol. 36 No. 3, pp.420-438. doi:10.1016/j.ijresmar.2019.03.003.

Venkatesh, V., Thong, J. Y. and Xu, X. (2012), "Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology", *MIS Quarterly,* Vol. 36 No. 1, pp.157-178. doi:10.2307/41410412.

Wang, S. (2017), "Determinants of mobile apps downloads: a systematic literature review", in Dameri, R.P. & Spinelli, R. (Ed.s), *in: Proceedings of the 11th European Conference on Information Systems Management (ECISM),* Academic Conferences and Publishing International Limited, Genoa, Italy September, pp.353-360.

Wang, M. and Li, X. (2017), "Effects of the aesthetic design of icons on app downloads: evidence from an android market", *Electronic Commerce Research*, Vol. 17 No. 1, pp.83-102. doi:10.1007/s10660-016-9245-4.

Yang, K. (2012), "Consumer technology traits in determining mobile shopping adoption: An application of the extended theory of planned behaviour", *Journal of Retailing and Consumer Services*, Vol. 19 No. 5, pp. 484-491. doi:10.1016/j.jretconser.2012.06.003.

Yi, Y. and Jeon, H. (2003), "Effects of loyalty programs on value perception, program loyalty, and brand loyalty", *Journal of the Academy of Marketing Science*, Vol. 31 No. 3, pp.229-240. doi:10.1177/0092070303031003002.

Yi, Y. and Yoo, J. (2011), "The long-term effects of sales promotions on brand attitude across monetary and non-monetary", *Psychology & Marketing*, Vol. 28 No. 9, pp.879-896. doi:10.1002/mar.20416.

Yoo, B., Donthu, N. and Lee, S. (2000), "An examination of selected marketing mix elements and brand equity", *Journal of the Academy of Marketing Science*, Vol. 28 No. 2, pp.195-211. doi:10.1177/0092070300282002.

Tables

Table 1: Research on the acceptance of mobile shopping and mobile apps

study	data collection	base model	fundamental antecedents	outcome variable
context of mobile shopping				
Khalifa and Shen (2008)	N=40	TAM TPB	perceived usefulness, perceived ease of use, self-efficacy, subjective norm	intention to adopt
Ko et al. (2009)	N=511, Korea	TAM	perceived usefulness, perceived ease of use, enjoyment, instant connectivity	perceived value, adoption intention
Yang (2012)	N=400	TPB	perceived usefulness, perceived enjoyment, subjective norm, perceived behavioural control	attitude toward mobile shopping, intention to use
Groß (2015)	N=125, Germany	TAM	perceived usefulness, perceived ease of use, perceived enjoyment, trust	attitude toward mobile shopping, behavioural intention
Sohn (2017)	N=798, Germany	TAM	mobile online store quality (technical, information, aesthetic, security)	usefulness of mobile online stores for information search/ purchasing
Marriott and Williams (2018)	N=435, UK	not specified	risk, trust	intention to use
Saprikis et al. (2018)	N=473, Greece	TAM DOI UTAUT	perceived usefulness, perceived ease of use, trust, relationship drivers, innovativeness, skilfulness, enjoyment, anxiety	behavioural intention, perceived usefulness (mediator)
context of mobile (shopping) apps				
Hubert et al. (2017)	N=410, UK	TAM	perceived usefulness, perceived ease of use, instant connectivity, contextual value, hedonic motivation, habit, financial risk, performance risk, security risk, mobile shopping application type	usage intention, usage behaviour, experience response, cross-category usage, perceived usefulness (mediator)
Hew et al. (2015)	N=288, Malaysia	UTAUT2	performance expectancy, effort expectancy, price value, facilitating conditions, habit, social influence, hedonic motivation	behavioral intention to use mobile apps
Shen (2015)	N=234; N=242	TAM TRA signalling-, regulatory focus-, positive mood theory	perceived usefulness, app type, regulatory focus framing, reputation	attitude toward the app, intention to use the app, perceived usefulness

Kim et al. (2016)	N=257	TAM	perceived informative usefulness, perceived entertaining usefulness, perceived social usefulness, perceived ease of use, user review, perceived cost-effectiveness	attitude toward app usage, behavioural intention to use mobile apps
Natarajan et al. (2017)	N=935, India	TAM DOI	perceived usefulness, perceived ease of use, perceived enjoyment, perceived risk, personal innovativeness	satisfaction, intention to use, price sensitivity
Roy (2017)	N=268; N=281, India	TAM TAM3	perceived usefulness, perceived ease of use, perceived enjoyment, subjective norm, image, job relevance, output quality, result demonstrability and antecedents of perceived ease of use	behavioural intention, perceived usefulness (mediator)
Chopdar et al. (2018)	N=145, USA; N=221, India	UTAUT2	performance expectancy, effort expectancy, hedonic motivation, price value, habit, social influence, facilitating conditions, privacy risk, security	behavioural intention, use behaviour
Natarajan et al. (2018)	N=675	TAM DOI	perceived usefulness, perceived ease of use, perceived enjoyment, perceived risk, personal innovativeness, satisfaction	intention to use
Mehra et al. (2021)	N=789, India	TAM DOI	perceived usefulness, perceived ease of use, perceived enjoyment, relative advantage, compatibility	behavioural intention to adopt mobile apps, perceived usefulness (mediator)
Vahdat et al. (2021)	N=777, Iran	TAM	perceived usefulness, perceived ease of use, social influence, peer influence	attitude towards mobile app use, intention to purchase
context of app features				
Ghose and Han (2014)	N=800 apps	-	different mobile apps characteristics (e.g. file size, app version, app developer, in-app purchase option)	app demand
Jain and Viswanathan (2015)	N=142, India	-	e.g. engagement with the app (features, design, socializing etc.)	post use evaluation of app by individual
Wang an Li (2017)	N=21.243	-	aesthetic design of icons (e.g. colourfulness or brightness)	app downloads
Stocchi et al. (2019)	N=335, UK	TAM	perceived usefulness, perceived ease of use, privacy of app, security of app, design characteristics of app, ubiquity app compatibility	usage intention, perceived usefulness (mediator)

Table 2: Results of hypotheses testing

hypotheses	relationship	evaluation
H1a	rebate → download intention	supported
H1b	rebate * perceived usefulness → download intention	rejected
H2a	online feature → download intention	supported
H2b	online feature → perceived usefulness → download intention	supported
H3a	online feature → intention to use	supported
H3b	online feature → perceived usefulness → intention to use	supported
H4	online features * channel preference → perceived usefulness	supported
H5a	in-store feature → download intention	rejected
H5b	in-store feature → perceived usefulness → download intention	rejected
H6a	in-store feature → intention to use	rejected
H6b	in-store feature → perceived usefulness → intention to use	rejected
H7a	online feature * in-store feature → download intention	rejected
H7b	online feature * in-store feature → perceived usefulness → download intention	supported
H8a	online feature * in-store feature → intention to use	supported
H8b	online feature * in-store feature → perceived usefulness → intention to use	supported
H9	in-store feature * channel preference → perceived usefulness	supported

Figures

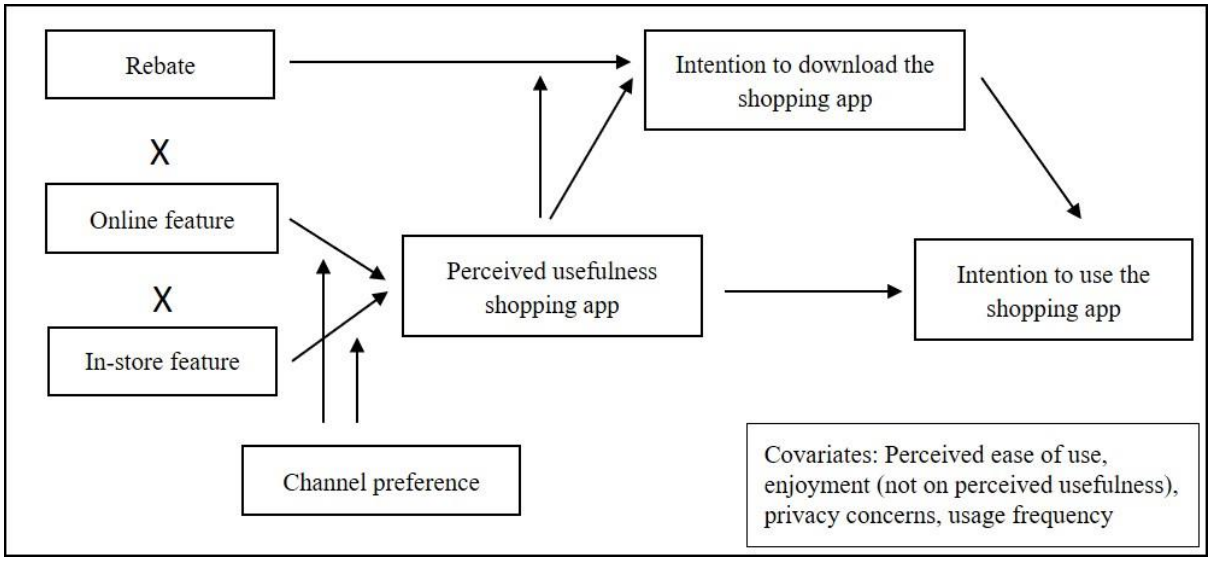


Figure 1: Research Model

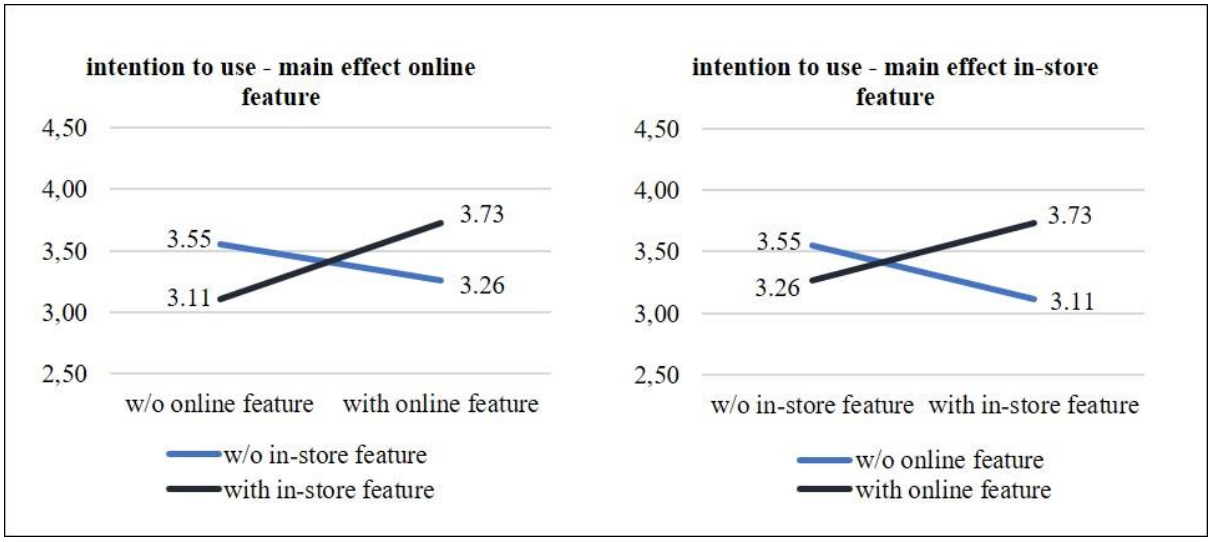


Figure 2: Interaction between an online and in-store feature on the intention to use.

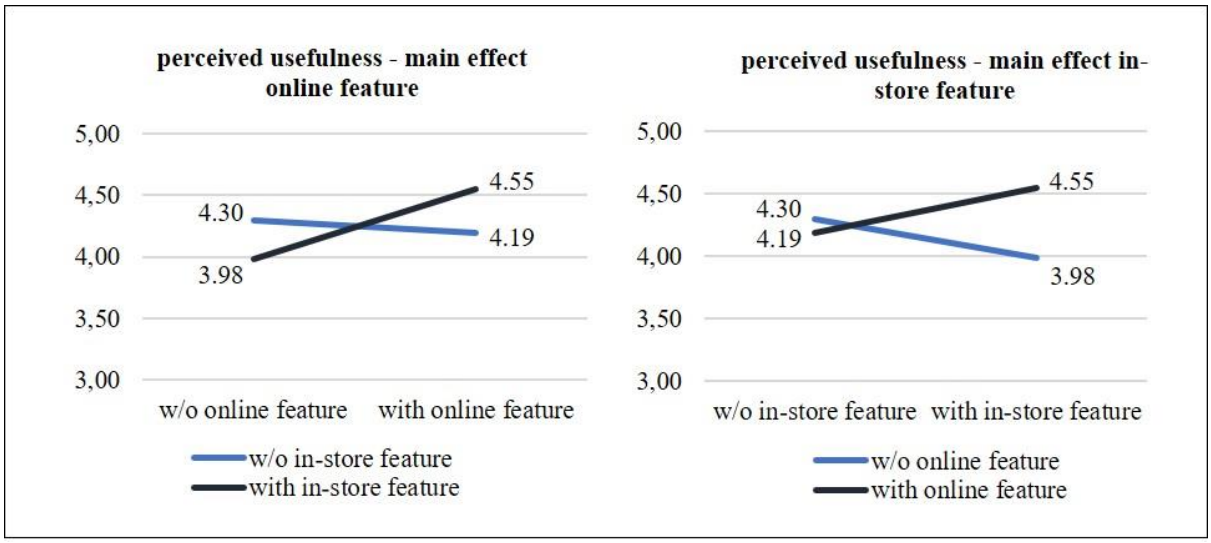


Figure 3: Interaction between an online and in-store feature on perceived usefulness.

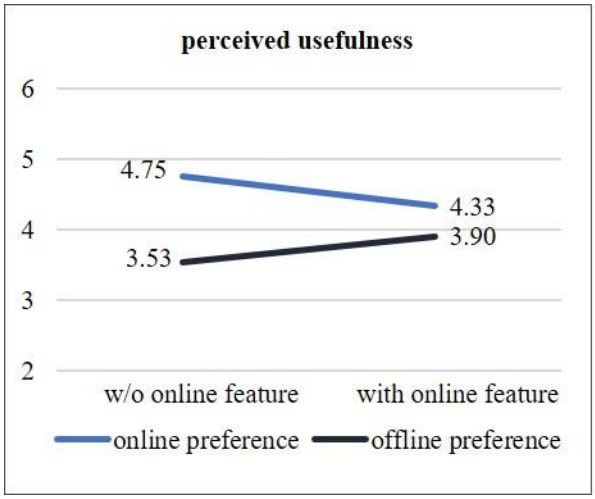


Figure 4: Interaction between an online feature and consumers' channel preference on the perceived usefulness.

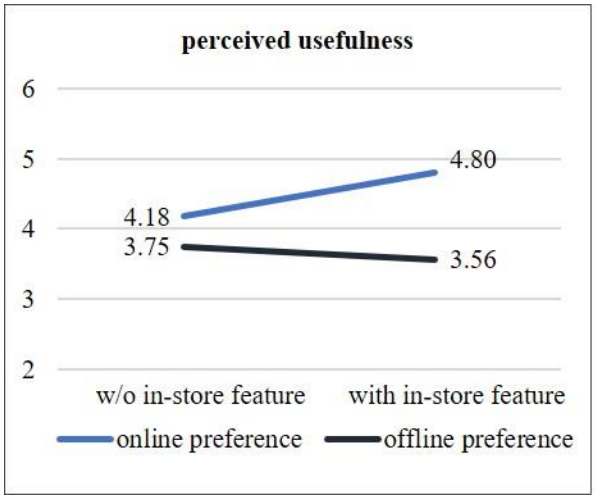


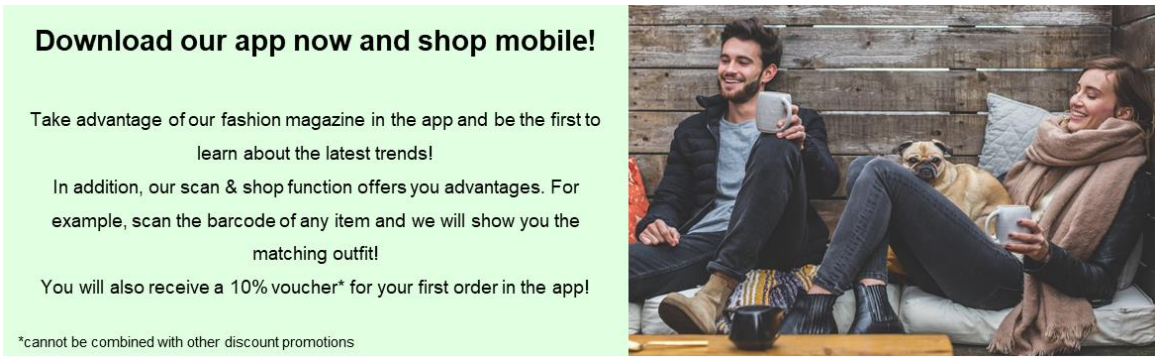
Figure 5: Interaction between an in-store feature and consumers' channel preference on the perceived usefulness.

Appendices

Appendix A: Scenarios (main study)

Introduction	
You are looking for a new sweater. To do this, you visit the online store of a fashion retailer you prefer. In addition to the online store, the fashion retailer also has brick-and-mortar stores in the city. While you are searching for the sweater on the Internet site, the ad below appears on your screen, in which the fashion retailer draws your attention to its shopping app.	
Scenarios	
1	online feature x rebate
2	in-store feature x rebate
3	online feature x in-store feature x rebate
4	online feature
5	in-store feature
6	online feature x in-store feature
7	rebate
8	no incentive

Example for scenarios (3)



Appendix B: Overview of constructs

		Cronbach's alpha		**Factor loadings**	
Construct	**Items**	Main study	Follow up	Main study	Follow up
Perceived Usefulness	Overall, I find the shopping app of the fashion retailer useful.			.865	.853
	I can shop more efficiently with the fashion retailer's app.			.855	.845
	The app of the retailer makes shopping easier.			.841	.833
	The app of the retailer helps me to make a better purchase decision.			.817	.833
	The app of the retailer improves my shopping possibilities.	.912	.914	.703	.784
Channel Preference	Where do you prefer to buy products?	-		-	

Download Intention	How likely is it that you would download the app of the retailer?	-		-	
Intention to use	How likely is it that you would use the app of the retailer in the future?	-		-	
Realism Check	It was very easy for me to put myself into the described purchase situation.			.927	.959
	I can well imagine the described purchase situation.			.916	.950
	I think the described purchase situation is realistic.	.917	.903	.841	.806
Manipulation Check	*Main Study:* Which of the following benefits were offered to you? Rebate Online magazine Scan and Shop function Mobile shopping *Follow up study:* I should imagine that I am going to the physical store of x. I should imagine that I am visiting the online shop of x. The advertisement said availability check. The advertisement said scan and shop function.				
Perceived ease of use	Downloading shopping apps is easy for me.			.893	.875
	Using shopping apps is clear and understandable for me.			.851	.875
	I find shopping apps easy to use.	.873	.826	.825	.797
Usage frequency	*Main study:* Never Less than once each week About once each week Several times each week About once each day Several times each day	-		-	
	Follow up study (adapted): Less than once each month About once each month More than once each month About once each week More than once each week About once each day More than once each day		-		-
Privacy concerns	It bothers me that the firm is able to track information about me.	-	-	-	-
Enjoyment	I find shopping apps entertaining.			.879	
	I find shopping apps pleasant.			.850	
	I find shopping apps are fun.	.910		.835	
Brand Loyalty	I like x more than other retailers.				.893
	I have a strong preference for retailer x.				.857
	I give prior consideration to retailer x when I have a need for clothes.				.834
	I would recommend retailer x to others.		.875		.772
Attitude toward App	I think the app of the retailer is…				
	bad-good				.852
	unpleasant-pleasant		.924		.851

negative-positive	.771

Appendix C: Scenarios (follow-up study)

Offline purchase preference: Imagine you walk into the retail store of XY. At the entrance, you notice the following advertising poster: S1: scan & shop function. S2: product availability check S3: scan & shop function + product availability check You enter the store and look around. After a short time, you find a product that you like. You buy the product and then leave the store.	Online purchase preference: Imagine you visit the online store of XY. On the homepage, you notice the following ad banner. S4: scan & shop function S5: product availability check S6: scan & shop function + product availability check You click through the individual pages in the online store and look around. After a short time, you find a product you like. You order the product and then close the online store.