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Who are the right customers for mobile and paper coupons?

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Abstract: This study aims to investigate the factors that will help marketers identify suitable consumers for mobile and paper coupons. The quantitative research study adopts a series of three studies using two different types of coupons. The data analysis was done through factor analysis, multiple regression, and t-test. This study revealed that consumer's usage intention between mobile and paper coupons is contingent upon their level of technology acceptance, need for haptics, smart shopping behaviour, and risk averseness. Through shedding light on consumer's behavioural attributes, this research will contribute to the advancement of marketing theory in the emerging coupon literature. It will also help marketers develop their segmentation, communication, and distribution strategies and target the right customers accurately. It is the first study to examine the differences in consumers' perception between mobile and coupons in light of different behavioural attributes.

Keywords: mobile and paper coupon; technology acceptance; TECH; need for haptics; smart shopping behaviour; SMSB; risk averseness; RISK.

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Biographical notes: Mohammad Galib is an Assistant Professor of Marketing at Tennessee State University. His current research interests include consumers' adoption of innovative technology that focuses on the motivational determinants of technology acceptance, intentions, and expectations.

1 Introduction

Currently, 97% of the entire US population owns mobile phones (Pew Research Center, 2021). This high penetration of mobile phones attracts marketers to adopt mobile marketing channel in order to reach out to a very broad target group. With the ability of reaching out to millions of potential customers in real-time, mobile advertising has created a very robust promotional channel (Lee, 2020; Maneesoonthorn and Fortin, 2006). Mobile marketing offers some unique benefits including ubiquitous nature, interactivity, cost-effectiveness, intimacy, greater reaching abilities, real-time communication, customisation, convenience, measurability and tracking. Because of

these exceptional characteristics of mobile communications, marketers are adopting mobile technology in their advertising and promotional campaigns. Thus, the spending on mobile advertising has been constantly rising every year. In 2020, a record high of $223 billion was spent on mobile advertising, representing 17% increase from 2019, and it is expected to surpass $339 billion by 2023 (Statista, 2021).

Mobile coupon is one of the promotional tools that offers all the aforementioned benefits, which are not available in the traditional paper coupons. According to the Mobile Marketing Association (2021), "a mobile coupon is an electronic ticket solicited and/or delivered by mobile phone that can be exchanged for a financial discount or rebate when purchasing a product or service."

According to CouponChief (2021), 88% of Americans used coupons in 2020, 54% of consumers admit they have made an impulse purchase because of a coupon, and 55% of consumers reported that coupons and discounts left a positive impression of a retailer. CreditDonkey (2021) also reported that 38% of consumers bought more than they would have planned because of a coupon, 67% of consumers made an unplanned purchase solely because of a coupon or discount, and 39% of consumers bought a brand other than their usual preference because of a coupon. Because of the appreciably high influence on consumer's purchase decision, almost half of the retailers adopt some coupon programs in the promotional campaigns (Boundless, 2017).

Marketers have multiple objectives behind issuing mobile coupons. The first objective is sales stimulation, while other objectives include customer relationship improvement and customer retention. Marketers use mobile coupons to stimulate sales through offering price reduction to attract new customers and retain existing customers. Mobile coupons can serve as a promotional tool to develop awareness of the product or attempt to appease any disgruntled customers. Unlike paper coupons, mobile coupons are time-sensitive, location-sensitive, and personalised. Marketers can issue time-sensitive, personalised mobile coupons when their sales drop and this can also improve their relationship with their customers. Location-based mobile coupons are another unique offering that can also attract many customers. Marketers can send location-based, personalised mobile coupons with some promotional offers when customers are in proximity to their stores. Marketers can enhance the redemption rate of mobile coupons substantially through relevant and on-time delivery, which would subsequently make their promotion activities considerably more successful than paper coupons (Nayal and Pandey, 2020; Shankar et al., 2010; Sharl et al., 2005).

When consumers respond to marketers' offers by redeeming mobile coupons, the goals of the mobile coupon campaign are achieved. This success will help marketers stimulate sales, and improve customer relationships, and loyalty. This is how a successful mobile coupon campaign can help marketers attract new customers, retain existing customers, expand their market-share, and eventually increase their profitability. If marketers fail to attract customers towards mobile coupons, and customers are not convinced or do not perceive mobile coupons as beneficial for them, the mobile coupon redemption rate will be low, thus impacting the product sales negatively. Low coupon redemption and low sales will lead to the failure of a mobile coupon campaign, which means that all the allocated resources for the mobile coupon campaign would be a waste.

Marketers will fail to meet their goal for return on marketing investment and this failure will eventually negatively affect the company's profitability and all other key performance indicators. As a result, the ultimate goal of the mobile coupon campaign will

not be achieved, and the mobile coupon will harm the company because of its lack of return on investment.

Despite the all the benefits of mobile coupons, there is still demand for paper coupons as it is reported that 93% of consumers use paper coupons while 75% use paperless coupons (CreditDonkey, 2021).

In order to enjoy all benefits of both type of coupons, marketers need to accurately identify customer's needs and preferences of each type of coupon. Sending the same coupon to all customers indiscriminately may not be effective as the behavioural attributes of all customers are not same. Marketers must adopt the differential approach depending on customer's needs and preferences. A 'one-size-fits-all' marketing strategy may not work for paper and mobile coupons. To target the right customers with the best promotional offerings, marketers should divide their target market into multiple segments based on consumer's behavioural characteristics. Moderating factors help marketers build customers' profiles to achieve this segmentation goal.

This study will attempt to explore those moderating factors to identify the suitable segmentation basis. In order to perform effective segmentation and targeting, marketers need to accurately identify the suitable candidates for each type of coupon. Thus, they will be able to tailor their couponing strategy to their relevant consumer segments. This study will delve into the behavioural characteristics of consumers who express their usage intention (UI) for each coupon type (CT). By developing a theoretical framework, this study will strengthen the knowledge on consumers' perception about couponing. Through shedding light on consumer's behavioural attributes, this research will contribute to the advancement and expansion of marketing theory in the emerging coupon literature.

1.1 Purpose of the study

The purpose of this study is to investigate the factors that have significant moderating effects on UI for coupon, which will help marketers identify suitable consumers for each type of coupon. It will examine how increasing or decreasing levels of different moderating factors strengthen or weaken the effects of mobile (vs. paper) coupon's UI.

2 Literature review

There is an overwhelming number of studies dedicated to identifying the factors influencing consumers' intention to redeem coupons. A variety of factors have been identified as the contributors for influencing consumers to redeem coupons. Appendix A illustrates different categories of factors that influence customers to redeem coupons with various domains and the studies performed in each corresponding domain.

The leading stream of coupon studies focuses on the factors influencing consumers to a redeem coupon. This stream has been sub-categorised into smaller streams including coupon-related, socio-demographic, socio-economic, psychological, and behavioural. The second stream of research studies focuses on the paper coupons. Being the oldest form of couponing, paper coupons have received extensive attention by marketing researchers, and it been studied the most among different forms of coupons. A significant portion of the paper coupon studies are relatively older, most notably before the introduction of online and mobile coupons. Coupon duration was found to be an

influential factor for coupon redemption. Trump (2016) examined the relationship between a coupon's duration for redemption and the consumer's attitude toward the company.

Heilman et al. (2002) found that in-store surprise coupon makes more unplanned purchases for treated items, the product primed by the coupon, and the products in near proximity to the product primed by the coupon, resulting in larger grocery baskets. Lee and Choeh (2021) discovered that coupon's functional (face value and product price) and social (brand popularity) values affect mobile coupon redemption. Bhutada et al. (2009) attempted to explore the impact of coupons and consumers' level of involvement in the advertising of prescription drugs. Their study revealed that for a prescription drug advertising, if someone was exposed to an ad with a coupon, that person would likely have a positive attitude and high intention to know more about the drug. Impulsive buying is an important area of research in marketing that is related to couponing.

Jhawar and Kushwaha (2018) suggest that factors that allow monetary savings such as free gifts, price discounts, and coupons are more likely to affect impulse buying than those that are related to the in-store environment, such as an in-store display, background music, salesforce, and store decoration. Free standing insert is an important area of research in the coupon literature. In a study investigating the correlation between free-standing insert advertising style and coupon redemption, Roehm and Roehm (2007) found that the tendency to clip a coupon may by increased by matching the ad tone with the spirit of the customer's motivation towards coupon redemption. Coupon has also been studied to investigate how to determine a coupon campaign's success through interaction of context variables, such as store proximity, part of town, weather, and financial incentives. Wierich and Zielke (2014) examined how a coupon's design factors influence the loyalty towards retailers. This study demonstrates that personal attention to customers and coupon face value have a positive influence on attitudinal loyalty. Kosmopoulou et al. (2016) also reported the welfare impacts of coupon trading, where companies send coupons to steal each other's loyal customers. Another interesting area is the unexpected next purchase coupon, which has rarely been studied. Chatterjee (2007) found that unexpected next purchase coupons could lead to higher buying satisfaction, but it may lower the perceptions of retailer fairness compared to advertised coupons.

The third stream of research focuses on the online coupons. In a meta-analysis of 32 studies on the effects of online and paper coupons on consumer purchase behaviour, Barat and Ye (2012) identified the impacts of attitude towards coupon and knowledge about coupons on the coupon usage, and the relationship between the perception and behaviour towards coupons. An important issue in the coupon study is the price sensitivity and how it relates to the face value of the coupon.

Barat and Paswan (2005) argue that the way of presenting information on a coupon has a reflective effect on the coupon redemption possibility. To identify the determinants of electronic coupon redemption, Chiou-Wei and Inman (2008) discovered that the consumer's education level and employment status positively influence coupon redemption rates. Their study revealed that the distance between the consumer's current location and redemption location has a significantly negative effect; however, the coupon's expiration date does not have any effect on coupon redemption. Couponing was also studied from the cost perspective. Kosmopoulou et al. (2016) observed that with the rise of coupon distribution cost, promotion frequency drops, promotion depth increases, while with the rise of fraction of coupon traders, both promotion frequency and

promotion depth drop. Very few coupon studies were undertaken to examine the gender difference in coupon usage.

In a gender-based study, Harmon and Hill (2003) investigated the difference in gender in consumption behaviour such as product selection and frequency of coupon usage by product type, and where they found that women were more frequent users of coupons than men. In another study, Hill and Harmon (2009) revealed that males and females differ in their opinions for just fewer than half of the 25 attitude statements. While most consumers see the benefits of using coupons and of bargain-hunting, the majority feel that collecting and using coupons is neither fun nor convenient.

Oliver and Shor (2003) examined the satisfying and dissatisfying effects of online coupon redemption, where they observed that digital coupon redemption had significant negative impact on customer satisfaction, price fairness, and purchase completion in the code-absent group and significant positive impact on customer satisfaction and price fairness in the code-present group.

The most recent stream of research in the coupon literature is the mobile coupon. Mobile coupons have received substantial attention by marketing researchers in recent years and a variety of topics have been selected by those researchers. Few studies looked at the influence of both intrinsic and extrinsic motivational factors on the usage of mobile coupons. Tang et al. (2016) found that some intrinsic (e.g., sense of self-worth and socialising) and extrinsic (e.g., economic reward and reciprocity) motivational factors have a positive effect on mobile coupon sharing on social networking sites (Tang et al., 2019).

In an experimental study to compare a mobile coupon with a customised versus non-customised delivery time, Bacile and Goldsmith (2011) found that customised delivery time of a mobile coupon improved both attitude toward the coupon and redemption intention, as well as attitude toward the company and purchase intention. Some researchers also investigated the influence of coupon design to enhance mobile coupon redemption rates.

Banerjee and Yancey (2010) found that when the coupon designs are congruent with the nature of the product, consumers' coupon response rate is enhanced. Several researchers selected consumers' attitude as one of the primary influential factors for consumers' coupon redemption. Achadinha et al. (2014), for example, identified that consumers' positive attitude is the most critical influential factor for mobile coupon redemption intention. Im and Ha (2013) also reported that attitude influences consumers' intention to use mobile coupons. Hsu et al. (2006) identified that attitude and perceived behavioural control have significant influence in the intention towards using mobile coupons, while subjective norm does not have any influence.

Some researchers focused on personal innovativeness and characteristics while examining mobile coupon adoption intention. Im and Ha (2012) argued that attitudes, perceived usefulness, and intentions differ significantly among different categories of adopters.

While the majority of the researchers attempted to understand the behaviour of the coupon redeemers, Banerjee et al. (2011) focused their study on the behaviour of the other group, non-redeemers. Their study aimed to investigate how to develop awareness through mobile coupon campaigns among coupon non-redeemers. Although most mobile coupon studies investigated the positive aspects of consumer behaviour, Im and Ha (2015) argue that consumers' privacy concerns and fear of spamming also significantly impact their mobile coupon usage decision.

Liu et al. (2015) investigated how consumers' value and personality factors affect their mobile coupon adoption intention. In their study, they revealed that personal innovativeness, perceived value, and coupon proneness positively influence consumers' mobile coupon adoption intention. Some researchers examined the coupon redemption intention based on the type of products, hedonic versus utilitarian.

Khajehzadeh et al. (2015) revealed that when the company offers a hedonic product, consumers' shopping motivation matters more, whereas when the company offers a utilitarian product, consumers' location dominates their intention to use the coupons. Khajehzadeh et al. (2015) revealed that consumers' shopping motivation enhances when a hedonic product is offered by the retailer, whereas customer's location influences their redemption intention when a utilitarian product is offered by the retailer. In a study to explore the factors that influence users' intention to share mobile coupons through social network sites,

Zhao et al. (2016) revealed that trust, social ties, and perceived similarity are positively related to mobile coupon sharing intention. Very few research studies have been undertaken to compare paper coupons with mobile coupons. In a study to compare between paper coupon and mobile coupons, Danaher et al. (2015) demonstrated that the location and time of delivery of the mobile coupon has significant influence in the redemption of it. They suggested that the expiry length of the coupon is also important for mobile coupon redemption because the redemption time for mobile coupons is usually much shorter than that for paper coupons.

In another comparative study between paper and mobile coupons, Kondo et al. (2007) discovered that a paper coupon sent on a post card positively affected the probability of customers' store visit, while a mobile coupon did not.

Although the above-mentioned studies compared between mobile and paper coupons with a very limited focus and scope, these did not address the question 'what are differences in consumers' perception between these two types of coupons' or 'what are the different behavioural attributes that strengthen or weaken consumer's UI for mobile (vs. paper) coupon.' These important questions remained unanswered in the previous coupon literature. The current study will attempt to bridge the research gap by investigating different moderating factors that have impact on the influence of CT on the UI. The following research questions were developed to bridge the aforementioned gaps in the current literature:

RQ1 For what type of consumers, mobile coupons are suitable?

RQ2 For what type of consumers, paper coupons are suitable?

3 Theoretical framework and hypotheses development

3.1 Technology acceptance

Technology acceptance (TECH) is an individual's internal evaluation of a new technology that can be either positive or negative (Phau and Teah, 2009). Research has established the technology acceptance model (TAM) to be a robust framework and one of the most widely used models for understanding TECH (Yousafzai et al., 2007; Carlsson et al., 2006). In the TAM, Davis (1989) argues that people's acceptance of new technology is influenced by their attitude towards that technology. Other researchers have

also identified attitude as one of the most influential causes of intention (Yang, 2010; Kim and Forsythe, 2008; Nysveen et al., 2005; June et al., 2003). A positive relationship between attitude toward technology and UI has also been confirmed by a variety of research studies (Shin, 2007; Ngai et al., 2007; Yousafzai et al., 2007; Saade and Bahli, 2005).

One of the barriers that marketers are facing with mobile coupons is the lack of consumer's mobile TECH (Achadinha et al., 2014). In the mobile marketing research, previous studies also demonstrated that attitude toward mobile marketing practices positively influences consumers' mobile marketing adoption (Rohm et al., 2012).

Achadinha et al. (2014) also confirmed that customers' attitude toward mobile technology directly influences consumers' UI for mobile coupons. When consumers receive mobile coupons, they review the coupons and develop an intention either to use or discard the coupons, depending on that review (Nikander, 2011). Based on the results of previous empirical research studies (Achadinha et al., 2014; Rohm et al., 2012), it can be argued that if consumers have positive perceptions about the mobile technology, they will have more positive attitude towards mobile marketing services and subsequently, that will lead to higher UI. They may be more experienced with mobile phones and feel a lower technological barrier when redeeming the mobile coupon at the store. Consequently, they can exploit the benefit of lower technological barrier much more than those with lower TECH. For these high TECH people, because of the absence of tangibility, mobile coupon may not trigger the money priming feelings the way paper coupons do. Additionally, compared to a paper coupon, a mobile coupon does not require any extra effort to search or save the coupon; that's why high TECH people may enjoy more from the benefit of ease of use.

Accordingly, this study argues that when a consumer has a positive attitude towards TECH, he or she would develop a positive UI the mobile coupon. Thus, the influence of the CT (mobile vs. paper) on the intention to accept and redeem the coupon is theorised to be moderated by consumers' attitude towards TECH. Therefore, the following hypotheses have been proposed for this study:

H1 The influence of CT (mobile vs. paper) on the UI is contingent on the consumer's level of TECH.

3.2 Need for haptics (NFHT)

Haptics is the 'active use of hands to retrieve the attributes of an object stimulus, using both cutaneous and kinesthetic inputs' (James et al., 2007). Each person may differ from another person based on their haptic orientation, or need for touch (NFT), which could be described as 'a preference for the extraction and utilisation of information obtained through the haptic system' (Peck and Childers, 2004a). It has been proven that when high NFT people are able to touch the products, they feel more confident in their product judgments, and they feel more frustrated when they are not allowed to touch the product (Peck and Childers, 2004b).

Research shows that the ability to touch a product increases people's favourable attitude and intention to purchase the product if the product has some touch attributes, including texture and softness (Peck and Childers, 2004a, 2004b).

Previous research also demonstrated that persuasion can be increased by attaching a haptic element to a persuasive appeal (Peck and Wiggins, 2006), and the absence of a

haptic element creates a depressing state or disappointment for haptically motivated consumers (Peck and Childers, 2004b). Even merely touching a product may cause an increase in perceived ownership of that product (Peck and Shu, 2009). Several researchers also revealed that information gathered from touching products is often considered as the focal point of purchase decisions (Peck and Wiggins, 2011; Peck and Shu, 2009; Peck and Childers, 2004a, 2004b).

This haptic factor may also apply to coupon redemption. One of the differences between paper coupons and mobile coupons is the haptic orientation. Paper coupons offer customers the ability to touch and feel the coupon, which may give them the sense of touching real money because of the haptic orientation. Therefore, this study builds the argument on the influence of haptics on customers' selection of a coupon between paper and mobile.

Consistent with Peck and Childers' (2004a) findings on haptic orientation, this study argues that customers who have the preference for touch to enjoy the sensory feedback will prefer the paper coupon over the mobile coupon because haptic elements are persuasive for those customers. Thus, intention to accept and redeem a mobile (vs. paper) coupon is theorised to be influenced by the consumer's NFHT. Additionally, it is expected that due of the haptic effect, money priming force is stronger for the paper coupon and weaker for mobile coupon for the people who have high NFHT.

Because of the halo effect, this should spill over to greater confidence on mobile coupons. When people can touch an item, they feel the sense of ownership of that item and because of that sense, they like that item more than the one they cannot touch. Accordingly, people can touch the paper coupon that gives them the sense of ownership of that coupon, which transforms into high confidence.

Thus, people with high NFHT have strong confidence in paper coupon, while those people feel less likely to own the mobile coupon and have less positive overall assessment and have lack of confidence in mobile coupon. If they have something tangible, that provides value to them, while a non-tangible product does not offer that strong value. Thus, the benefit of ease of use does not entice them because they prefer to touch and feel the coupon. Therefore, this study postulates the following hypotheses.

H2 The influence of CT (mobile vs. paper) on the UI is contingent on the consumer's level of NFHT.

3.3 Smart shopping behaviour

Smart shopping behaviour (SMSB) involves spending time and effort in searching for information about promotions, comparing prices, picking up bargains, and saving money (Zalega, 2017). It requires rational planning of budget through buying only the necessary and previously planned goods at lower price (Mittal et al., 2017). When a customer saves some money through a promotional offering, he or she enjoys the utilitarian function and the customer's feeling of being thrilled, excited, joyful, accomplished, smart, proud, competent, and satisfied because that saving represents an ego-expressive function. Finding a lower price can provide not only a utilitarian evaluation, but also an ego-expressive evaluation for a consumer. Thus, consumers' SMSB through coupon redemption may lead to both utilitarian and ego-expressive functions.

We argue that through redeeming a mobile coupon, a customer may enjoy the feelings of being accomplished, smart, proud, competent, thrilled and satisfied, which

leads to the ego-expressive evaluation. Additionally, compared to a paper coupon, a mobile coupon is more efficient in searching as it offers varieties of sources and saves searching time from multiple sources.

Thus, we also contend that smart shoppers would prefer mobile coupons over paper coupons because of the ego-expressive functions. Furthermore, smart shoppers enjoy attractive deals from retailers; they may appreciate the lower effort of mobile coupons compared to paper coupons.

Also, these consumers may be less likely to have any concern with mobile coupons reducing the negative effect. Additionally, smart shoppers always look for opportunities to save money through deals and price-cuts on any purchase. Because of this deal-hunting and money-oriented mindset, they prefer to use mobile phone as a platform that offers them flexibilities to search for better deals and compare different coupons. Unfortunately, paper coupon does not offer those flexibilities, thus mobile coupons are more like money for smart shoppers. Thus, the following hypotheses are proposed.

H3 The influence of CT (mobile vs. paper) on the UI is contingent on the consumer's level of SMSB.

3.4 Risk averseness

Risk averseness (RISK) is a person's propensity to avoid taking risks and has been defined as the extent to which people feel threatened by ambiguous situations and have created beliefs and institutions that try to avoid these (Lee et al., 2011). This psychological attribute is a valuable consumer characteristic for categorising them in different groups such as online vs. off-line shopper, buyer vs. non-buyer, and risk-avert vs. risk-tolerant (Chan and Chong, 2013). Accordingly, in the context of the current study, this psychological element of consumer behaviour can contribute to consumers' decisions to select between paper and mobile coupons.

Previous research (Jayawardhena et al., 2009) revealed that although mobile coupons offer varieties of benefits over paper coupons, perceived risk associated with privacy can prevent usage of mobile coupons. The current research defines perceived risk as the degree to which customers believe the potential threat of losing their personal data associated with receiving and redeeming mobile coupons. Mobile coupons involve some element of perceived risk because marketers need customers' permission to use their personal data such as phone number, location, and email address before sending out the coupon to customers' mobile devices.

Consumers with low risk aversion might enjoy receiving the mobile coupons because coupon redemption gives them the opportunity to save some money, and enjoy the whole process of coupon searching, sorting and redemption, which brings the hedonic pleasure. On the contrary, consumers with high risk aversion may be reluctant to share their personal information and grant the permission to send the coupon and refrain from mobile coupons. Therefore, it is conceivable that risk aversion has an impact on a customer's coupon selection.

We theorise that in terms of perceived risk, consumers' perception towards paper coupons and mobile coupons varies and this variation is due to the customer's level of risk tolerance or averseness. A risk-averse customer may prefer paper coupon because of the non-existence of risk associated with the paper coupon. Conversely, a risk-neutral

customer may prefer mobile coupons because he or she does not feel threatened by risky and ambiguous situations, and rather enjoys them as an exciting event.

When consumers are exposed to a mobile coupon, their risk avoidance tendency may prevent invoking their money priming feelings because of different risk factors and privacy concerns associated with online transactions (risky money). Paper coupons are free from those risks and concerns and should be more likely to perceived as reflecting money or mirroring money. Hence, paper coupons are more appealing to risk-averse people compared to mobile coupons, while mobile coupons will be preferable to high risk-seekers or risk-tolerant people. This study argues that RISK would weaken the effect of mobile (vs. paper) coupons on UI.

H4 The influence of CT (mobile vs. paper) on the UI is contingent on the consumer's level of RISK.

4 Research methodology

4.1 Research design

This research study used factor analysis techniques comprised of a pilot study (n = 112) and two main studies, namely study 1 (n = 434) and study 2 (n = 465). The sample size of two main studies were three times more than that of suggested by the G*Power software. All data were collected through online survey from the USA who own mobile phones. The purpose of the pilot study is to validate the instrument, where the questionnaire was thoroughly examined to identify any errors, flaws, ambiguities, or confusions in the questionnaire.

Additionally, the research methodology was reviewed by completing all steps in data collection, screening, data analysis in the pilot study. A manufacturer's coupon for a window cleaning product was used in the pilot study. In the pilot study, 143 surveys were collected where 112 were selected after the review. The remaining 31 surveys were rejected for missing data, item omissions, missing pages, non-response errors, and any inconsistencies in the survey.

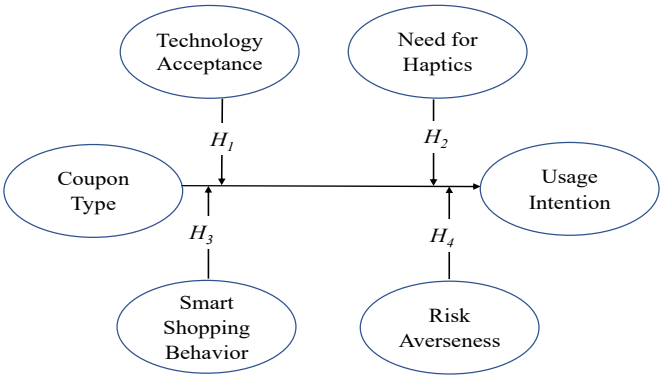
In the screening process, absence of outliers, tests of existence of linear relationships, presence of multivariate normality, and lack of high multicollinearity were performed. The variance inflation factor (VIF) was used to measure the multicollinearity, where a high VIF indicates high strong multicollinearity. The test of normality is performed to determine whether the collected data are normally distributed.

Skewness and Kurtosis were measured to confirm the normality of the data. To measure the reliability of the constructs, Cronbach's alpha was measured. For the validity testing, construct validity was tested, which was examined by testing convergent validity and discriminant validity. Convergent validity was examined by measuring the average variance extracted (AVE) of each construct by observing the factor loadings and a principal component analysis with a promax rotation was performed to ensure the discriminant validity. Same process for data screening, test of multicollinearity, normality, validity, reliability, factor analysis and linear regression analysis were followed in two main studies.

4.2 Research model

To address the research questions, a research model (Figure 1) has been developed by incorporating an independent variable (IV), a dependent variable (DV), and four moderating variables namely, TECH, NFHT, SMSB, and RISK. The moderating variables affect the strength of the relationship between IV and DV. With the increase or decrease of moderating variables, the direction of the relationship between IV and DV may change or even flip. In this research, it is hypothesised that the influence of CT (mobile vs. paper) on UI will be strengthened or weakened by the four moderating variables. This research model will help examine how the influence of CT (mobile vs. paper) on UI is strengthened or weakened with the increase or decrease the level of TECH, NFHT, SMSB, and RISK. The analysed results of these moderating factors in the research model will answer the research questions of this study.

Figure 1 Research model (see online version for colours)



4.3 Measures

A self-administered survey questionnaire was developed to address the two research questions and four hypotheses. All constructs incorporated in the research model of this study have been adapted from established scales that exhibited high scores of reliability and validity tests in previous studies (Huang et al., 2004; Donthu and Garcia, 1999; Davis, 1989). Despite that, independent test of reliability and validity were performed in the Pilot study, as well as two main studies. A five-point Likert scale (where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) was used to measure all items except demographic questions. In the demographic section, participant's gender, age, income, and ethnic background were collected. Appendix B displays the questionnaire with the list of constructs utilised in this study.

5 Study 1

The purpose of this first study is to examine how increasing or decreasing levels of four moderating variables strengthen or weaken the effects of CT in UI. A coupon of window cleaner, Windex was used for this first study.

A total of 458 survey were collected in this first study where 434 were complete and the remaining were rejected for incomplete or missing data. Before the final data analysis, data were screened to check the missing data, outlier, linearity, normality, and multicollinearity. After completing the reliability and validity testing, exploratory factor analysis was performed. Once data quality was confirmed, demographic analysis and multiple regression were performed.

The Cronbach's alpha ranged from 0.75 (for SMSB) to 0.91 (for TECH), which confirms the acceptable reliability of the construct (Table 1). The AVE values for all constructs exceeded 0.5, except SMSB (0.41) and TECH (0.46), which ensures the convergent validity (Table 1). The correlation matrix (Table 3) demonstrates that all correlations between factors are below 0.7, confirming the discriminant validity. As the Table 4 demonstrates, the Skewness in this study ranged from -0.50 to 0.05 and the Kurtosis ranged from –0.83 to 0.43, which confirm the normality of data distribution. The tolerance values in this study ranged from 0.35 (VIF = 2.87 for CT) to 0.87 (VIF = 1.15 for SMSB), demonstrating the absence of multicollinearity. Appendix F displays the tolerance and VIF values of each IV.

Before testing the hypotheses, multiple rounds of EFA were conducted to obtain an optimum factor structure with the grouping of variables based on strong correlations. To measure the correlation between variables, the Pattern Matrix with Maximum Likelihood Extraction was performed (Appendix D and E). In order to confirm the necessary distribution of the values for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were performed. The interaction effects were calculated at 16th, 50th, and 84th percentile representing low, medium, and high levels of moderating factors using the PROCESS macro. Participants of this first study were almost equally divided between male and female. Majority (60.4%) of the participants were under 30 years of age and earn less than $40,000 a year. More than one-third of the participants are Caucasians, followed by African-American. Appendix G summarises the demographic distribution of participants of both studies.

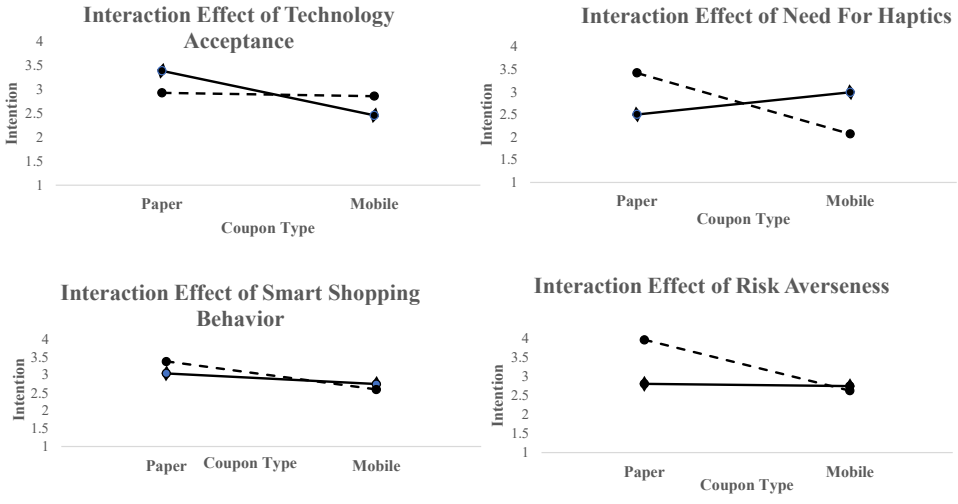
5.1 Moderating effect of TECH – study 1

People's levels of UI flips between paper and mobile coupons with the change of their levels of TECH. At the low level of TECH, the UI for mobile coupon is low ($M_{16th\ percentile} = 2.46$, $p \leq 0.01$) compared to paper coupon ($M_{16th\ percentile} = 3.39$, $p \leq 0.01$). With increasing levels of TECH, UI jumps little higher for mobile coupons ($M_{84th\ percentile} = 2.86$, $p \leq 0.01$), while it drops for paper coupon ($M_{84th\ percentile} = 2.93$, $p \leq 0.01$).

The effect of mobile coupons on UI reverses for consumers with low ($\beta_{16th\ percentile} = –0.92$, $t = –18.17$, $p \leq 0.01$) and high ($\beta_{84th\ percentile} = –0.07$, $t =–1.31$, $p \leq 0.01$) levels of TECH. This demonstrates a reverse relationship between level of TECH and change in UI.

The moderating effect of TECH on UI was significant ($\beta = 0.63$, $t = 11.59$, $p \leq 0.01$), supporting Hypothesis 1. This indicates that the influence of CT (mobile vs. paper) on the UI is contingent upon the change of their level of TECH. The interaction effects of CT and TECH, NFHT, SMSB, and RISK on UI were summarised in Appendix C and graphically represented in Figure 2.

Figure 2 Interaction effects in the study 1



5.2 Moderating effect of NFHT – study 1

NFHT has a moderating effect on the influence of mobile (vs. paper) coupons on the UI. The effect of CT on UI flips depending on the low ($\beta_{16th\ percentile}$ = 0.49, t = 18.99, $p = \leq 0.01$) and high ($\beta_{84th\ percentile}$ = –1.35, t = –59.30, $p = \leq 0.01$) levels of NFHT. At the low level of haptics, people's UI for a mobile coupon ($M_{16th\ percentile}$ = 2.99) is a little higher than that of a paper coupon ($M_{16th\ percentile}$ = 2.5) while with increase in the level of haptics, UI for mobile coupons decrease significantly. UI for paper coupons is higher than that of mobile coupons at both medium and high levels of haptics.

The more the level of haptics increases, the higher the difference between UI for paper ($M_{84th\ percentile}$ = 3.42) and mobile ($M_{84th\ percentile}$ = 2.07) coupons exist. This demonstrates a very strong moderating effect of NFHT on UI. Elevating the level of r NFHT weakens the positive effect of mobile (vs. paper) coupon's UI. When people's NFHT increases, they intend to redeem mobile coupons less than they do paper coupons. The increasing or decreasing level of NFHT has an effect on people's UI mobile (vs. paper) coupons. Therefore, Hypotheses 2 is accepted.

5.3 Moderating effect of SMSB – study 1

The interaction effect of CT and SMSB on the influence of mobile (vs. paper) coupon on the UI is significant (β = –0.31, t = –5.13, $p \leq 0.01$). The effect of CT on UI reverses depending on the low ($\beta_{16th\ percentile}$ = 0.49, t = 18.99, p = ≤ 0.01) and high ($\beta_{84th\ percentile}$ = –1.35, t = –59.30, $p = \leq 0.01$) levels of SMSB. At the low level of SMSB, people's UI for a mobile coupon ($M_{16th\ percentile}$ = 2.74, $p = \leq 0.01$) is lower than that of a paper coupon ($M_{16th\ percentile}$ = 3.04); with increase in the level of SMSB, UI for mobile coupons decreases ($M_{84th\ percentile}$ = 2.59, $p = \leq 0.01$), while that increases for paper coupon ($M_{84th\ percentile}$ = 3.37, $p = \leq 0.01$). This implies that the influence of CT (mobile vs. paper) on the UI is contingent upon the change of their level of SMSB. Thus, Hypothesis 3 is supported.

5.4 Moderating effect of RISK – study 1

People's UI substantially varies between paper and mobile coupons, according to the change of their level of RISK. Increasing levels of RISK weakens the positive effect of mobile (vs. paper) coupon UI ($\beta = -1.11$, $t = -20.43$, $p \leq 0.01$). At the low level of RISK, the UI for paper coupon ($M_{16th\ percentile} = 2.8$, $p = \leq 0.01$) was slightly higher than that of mobile coupon ($M_{16th\ percentile} = 2.74$, $p = \leq 0.01$). With the increase in people's level of RISK, people's perception of coupon UI changes significantly between these two types of coupons. At the high level of RISK, people's UI for mobile coupon ($M_{84th\ percentile} = 2.62$, $p = \leq 0.01$) drops and paper coupon ($M_{84th\ percentile} = 3.95$, $p = \leq 0.01$) jumps.

People who would like to avoid risk more have substantially higher UI for paper coupons ($M_{84th\ percentile} = 3.95$, $p = \leq 0.01$) than in mobile coupons ($M_{84th\ percentile} = 2.62$, $p = \leq 0.01$). This demonstrates that increasing or decreasing level of RISK has an effect on people's UI for mobile (vs. paper) coupons, supporting Hypothesis 4.

5.5 Discussion – study 1

This study revealed that the influence of CT (mobile vs. paper) on the UI is contingent upon consumer's level of TECH, NFHT, SMSB, and RISK. TECH is the only moderating factor that has positive effect on coupon UI, for all other moderators, the effect is negative. Additionally, the moderating effects of TECH and NFHT are the strongest among the four moderators.

People who are less tech-savvy would prefer paper coupons as the UI drops drastically when CT switches from paper to mobile. People with low NFHT have a positive perception about mobile coupons, and hence, their UI is even higher than for paper coupons.

Conventional wisdom suggests that coupon UI is predominantly determined by consumer's smart shopping tendencies. This study also supports that belief; it reveals that the effect of the CT (mobile vs. paper) appears to be very much strong for those who consider themselves smart shopper. This study also revealed that high risk-averse people would prefer paper coupons over mobile coupons, while the low risk-averse people would prefer the opposite.

6 Study 2

The purpose of this second study is to test the robustness of the research model. The key contribution of this second study is the application of the same research model in a completely different domain, which will give us the acceptance of generalisability of the research model. It applies the research model in a non-tangible service industry with a coupon of a restaurant (Souplantation) to test whether the model can be universally applied, or whether the result varies across domains. Out of 504 online surveys collected, 465 surveys were selected final analysis after the data screening.

Data analysis of this second study followed the same steps as the first study that includes data screening, test of reliability and validity, exploratory factor analysis, demographic analysis, and multiple regression analysis.

6.1 Moderating effect of TECH – study 2

Like the first study, the second study also reveals that the interaction effect of TECH (CT × TECH) on UI was significant ($\beta = 0.86$, $t = 12.46$, $p \leq 0.01$). The effect size of TECH in the 2nd study is stronger (study 2 = 0.86 vs. study 1 = 0.63) than that of the first study. This implies that the increasing or decreasing level of TECH affects the perception of coupon usage, supporting Hypotheses 1. With the increase of TECH level, people prefer mobile coupons over paper coupons; people appreciate the benefits of mobile coupons more than they do for paper coupons. The increasing level of TECH flips the effect of mobile (vs. paper) coupons on UI.

6.2 Moderating effect of NFHT – study 2

The interaction effect of CT and NFHT on UI is significant ($\beta = -1.11$, $t = -20.43$, $p \leq 0.01$). With the increase in the level of NFHT, consumers' UI decreases for mobile (vs. paper) coupons. People with low NFHT have more interest in mobile (vs. paper) coupons than the people with higher NFHT. Conversely, people with a high NFHT are more interested in paper (vs. mobile) coupon usage. With the increase in the NFHT level, people value paper coupons more compared to mobile coupons. Thus, Hypothesis 2 is accepted. This finding in the 2nd study is congruent with the findings of the 1st study.

6.3 Moderating effect of SMSB – study 2

Similar to the first study, the interaction effect of CT and SMSB on UI is also significant ($\beta = -0.66$, $t = -6.28$, $p \leq 0.01$) in the second study. At the low level of SMSB, people's UI is same for both paper and mobile coupons.

However, when people's SMSB increases, the UI for mobile (vs. paper) coupons decreases, while that increases for paper coupon. Thus, Hypothesis 3 is accepted. SMSB reduces mobile coupon-induced effects on mobile (vs. paper) coupon.

6.4 Moderating effect of RISK – study 2

The increasing or decreasing level of RISK has significant interaction effect on mobile (vs. paper) coupon UI, accepting Hypothesis 4. The perception of coupon UI works in opposition between mobile and paper coupons, depending on the level of RISK. Low risk-averse people value mobile coupons more than paper coupons, while high risk-averse people value paper coupons over mobile coupons. The level of RISK has a significant ($\beta = -1.06$, $t = -21.10$, $p \leq 0.01$) interaction effect of CT on UI. Figure 3 illustrates the interaction effects of four moderating factors of the second study.

Figure 3 Interaction effects in the study 2

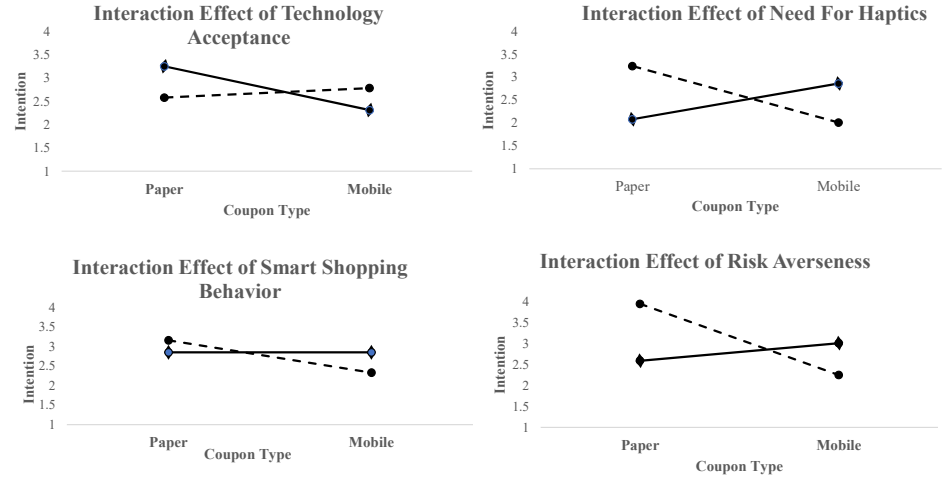


Table 1 Reliability coefficients

Variable	*Number of items*	*Cronbach's alpha (α)*		*AVE*		*CR*	
		Study 1	*Study 2*	*Study 1*	*Study 2*	*Study 1*	*Study 2*
TECH	6	0.91	0.92	0.46	0.71	0.85	0.94
NFHT	5	0.80	0.93	0.59	0.76	0.69	0.94
SMSB	4	0.75	0.79	0.41	0.61	0.73	0.86
RISK	5	0.90	0.93	0.57	0.77	0.83	0.94
UI	5	0.78	0.88				

Notes: TECH = Technology Acceptance, NFHT = Need for Haptics,
SMSB = Smart Shopping Behaviour, RISK = Risk Averseness,
UI = Usage Intention.

6.5 Discussion – study 2

The result of the second study was similar to the result of the first study. Even though, the effect size was different for the four moderating factors, the directions of those effects were same as the first study. Compared to the first study, the effect of TECH, RISK and SMSB were stronger, while the effect of NFHT was weaker in the second study. The result of the first study also confirmed in the second study with regard to the effect of CT on consumer's UI.

Table 2 Moderating effects

Path	*β*		*SE*		*t*		*P*	
	Study 1	*Study 2*	*Study 1*	*Study 2*	*Study 1*	*Study 2*	*Study 1*	*Study 2*
TECH × coupon type	0.63	0.86	0.05	0.07	11.59	12.46	0.000	0.000
NFHT × coupon type	–1.24	–1.11	0.02	0.05	–53.80	–20.43	0.000	0.000
SMSB × coupon type	–0.31	–0.66	0.06	0.10	–5.13	–6.28	0.000	0.000
RISK × coupon type	–0.64	–1.06	0.03	0.05	–18.06	–21.10	0.000	0.000

Table 3 Correlation matrix

Component	*TECH*	*RISK*	*NFHT*	*SMSB*
Technology acceptance (TECH)	1.00			
	1.00			
Risk (RISK)	–0.16	1.00		
	–0.46	1.00		
Need for haptics (NFHT)	–0.11	–0.12	1.00	
	–0.43	0.42	1.00	
Smart shopping behaviour (SMSB)	0.06	0.12	0.19	1.00
	0.06	0.31	0.20	1.00

Note: Top number represents study 1 and bottom number study 2.

Table 4 Mean, standard deviation, skewness and kurtosis

Variable	*Mean*		*Standard deviation*		*Skewness*		*Kurtosis*	
	Study 1	*Study 2*	*Study 1*	*Study 2*	*Study 1*	*Study 2*	*Study 1*	*Study 2*
UI	2.74	2.75	0.76	0.67	0.03	0.81	–0.39	0.26
TECH	3.93	3.91	0.71	0.74	–0.50	–0.69	0.01	0.11
NFHT	3.42	2.85	0.71	0.86	–0.32	0.25	0.43	–0.65
SMSB	2.82	2.89	0.74	0.59	0.05	–0.29	–0.83	0.58
RISK	2.96	3.33	0.75	0.91	–0.07	0.13	–0.38	–1.36

Notes: TECH = technology acceptance, NFHT = need for haptics,
SMSB = smart shopping behaviour, RISK = risk averseness,
UI = usage intention.

Table 5 Summary of hypothesis testing on the study-1 and study-2

No.	*Hypothesis*	*Result of study-1*	*Result of study-2*	*Summary result*
1	The influence of CT (mobile vs. paper) on the UI is contingent on the consumer's level of TECH.	√	√	Fully supported
2	The influence of CT (mobile vs. paper) on the UI is contingent on the consumer's level of NFHT.	√	√	Fully supported
3	The influence of CT (mobile vs. paper) on the UI is contingent on the consumer's level of SMSB.	√	√	Fully supported
4	The influence of CT (mobile vs. paper) on the UI is contingent on the consumer's level of RISK.	√	√	Fully supported

Mobile (vs. paper) has a negative effect on consumer's UI. The intensity of this effect depends on people's level of TECH, NFHT, SMSB, and RISK. Among these moderating factors, the strongest is the NFHT (β = –1.24) and the weakest factor is the SMSB (β = –31). Table 5 summarises the results of hypothesis testing for the two studies. The √ represents the hypotheses that are supported, and X represents those not supported.

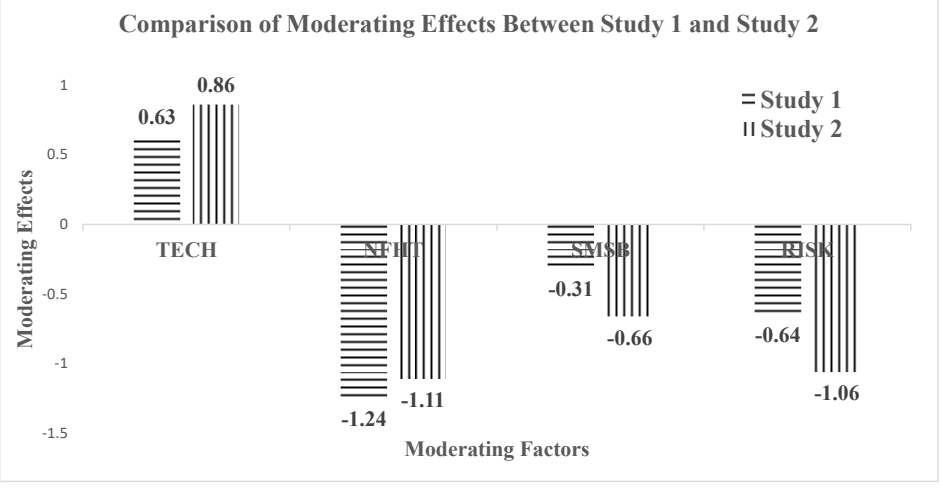
7 Discussion and implications

7.1 Discussion

Each study in this research study served a specific purpose. The pilot study was designed to develop the instrument; the first study aimed to investigate the moderation effect, and the second study replicated it in the different domain. To this end, the type of the products of the coupon used in these two studies varied systematically. A coupon for tangible product Windex for window cleaner was used for the first study, while a non-tangible service (restaurant) coupon for Souplantation was used for the second study. Two coupons from two different product – types and domains were used for generalisability. Additionally, the discount type of two coupons were different: Windex coupon had the fixed dollar amount (one dollar) discount, whereas Souplantation coupon had the percentage off (20%) discount.

According to Figure 4 demonstration, the findings to the two studies were very consistent. In both studies, the only factor that has positive effect is the TECH, all other three factors, NFHT, SMSB, and RISK have negative moderating effects. The two strongest factors are NFHT and RISK were found in both studies.

Figure 4 Comparison of moderating effects between the two studies



Notes: TECH = technology acceptance, NFHT = need for haptics,
SMSB = smart shopping behaviour, RISK = risk averseness.

Mobile coupons are evidently a double-edged sword and critically depended on the consumer's behavioural attributes, such as their NFHT, RISK, SMSB, and TECH. The

effect of CT works in two completely distinct ways depending on people's level of these four characteristics. For people with low level of NFHT, the effect of mobile coupon is stronger, while the effect of paper coupon is dominant for people with high NFHT.

Thus, mobile coupons are more likely of be redeemed than paper coupons by the consumers with low NFHT. This is not the case for people with higher NFHT. Accordingly, low TECH people value paper coupons more and ignore the benefit of technology, while high TECH people care about the benefit of technology in their decision of coupon usage. Interestingly, people ignore the benefit of mobile coupons when their SMSB level is low. People's level of RISK determines the impact on their UI. When people become more risk-averse, they become less interested in mobile (vs. paper) coupons. Additionally, elevating people's haptics level decreases their UI for mobile (vs. paper) coupons. As people feel more NFHT, the less they intend to use mobile (vs. paper) coupons. Similarly, when people try to do their shopping more smartly, their UI for mobile (vs. paper) coupons become weaker.

Finally, in the robustness tests with the covariates of occupation, gender, age, income, and ethnicity for both studies, it was confirmed that the result remains same between the two tests, with and without covariates. This confirms the robustness of the conceptual model proposed in this research.

7.2 Managerial implications

This study reveals several interesting findings for managers. The current study recommends marketers adopt a differentiated approach for each type of coupon based on consumers' behavioural characteristics. The knowledge acquired from this study can help marketers develop effective strategies for customer segmentation, communications and distributions of coupons, product selection for couponing, and efficient product pricing.

7.2.1 Segmentation strategies

Segmenting is a clear implication for managers and moderating factors help them formulate their segmentation strategy. This study suggests that mobile coupons help one segment and may hurt another segment. Overall, mobile coupons have a lower UI, thus replacing paper coupons with mobile coupons indiscriminately or sending mobile coupons to everyone may not be an effective strategy. Depending on the consumer's behavioural attributes, marketers should divide their target market into multiple segments and select the appropriate CT. According to the findings of this study, marketers should divide their market into the following segments based on the customer's characteristics.

7.2.1.1 Segmentation based on NFHT

Researchers have undertaken several studies based on consumer's demographic factors such as education level (Chiou-Wei and Inman, 2008), gender (Hill and Harmon, 2009; Harmon and Hill, 2003), and employment status (Chiou-Wei and Inman, 2008). Need to haptics is not like demographic factors that are easy to observe; it is rather difficult to scrutinise when there is a need for some instrument to measure this attribute of consumers.

Companies could use the instrument in order to measure Need to haptics. Low NFHT people have high UI for paper coupons compared to mobile coupons. Consequently,

marketers should target the low haptics group for mobile coupons and high haptics group for paper coupons. The latter group appreciates the feelings of touching the paper coupon, and hence, is motivated by that sensory feedback. This haptics feeling is not strong and impactful enough to the low haptics people, which leads them to higher UI for mobile (vs. paper) coupons.

7.2.1.2 Segmentation based on TECH

Another segmentation criteria marketer should apply is the TECH. High TECH customers may prefer mobile coupon and low TECH customers love paper coupons as we found in our study. Age, gender, and income are quite often used by marketers for segmentation although these variables may not be always helpful for coupon context because psychographic variables are the dominant ones that determine people's coupon usage as we observed in this study. Companies would be misled by just relying on those characteristics that are easy to be observed.

7.2.1.3 Segmentation based on SMSB

The conventional wisdom suggests that smart shoppers respond strongly to CT. The findings of this study also support that view. The CT effect shifts with the change of consumer's smart shopping tendencies. Hence, this SMSB could be used as an important criterion for consumer segmentation in determining whether to employ mobile or paper coupons.

7.2.1.4 Segmentation based on RISK

A consumer's propensity to accept or reject risk is a strong differentiating factor for a consumer's behavioural segmentation (Zhou, 2012; Liao et al., 2011; Varnali and Toker, 2010; Kim et al., 2008). Through this RISK segmentation basis, customers could be identified and categorised depending on their level of risk acceptance tendency. This study reveals that high risk-averse people may have a lack of confidence in mobile coupons, thus preferring paper coupons. Conversely, low risk-averse people do not have that problem of confidence, thus mobile coupons could be suitable for them.

Mobile coupons are cheaper than paper coupons and have a wider distribution range; on the contrary, the UI declines for mobile coupons. Thus, marketers must balance between these two. However, this is a question to which we cannot find the answer through this study. Taking all of this together, the primary target segmentation for mobile coupons are consumers with low NFHT, high TECH, high SMSB, and low RISK.

7.2.2 Communication strategies

Finding of this study suggest that companies could use the above-listed segmentation basis and adjust their communication messages according to the behavioural attributes of each segmentation. Companies also need to apply different communication techniques for mobile and paper coupon-users depending on their behavioural characteristics. A generic message might not be as effective as the targeted message (Marmo, 2013;

Cameron et al., 2009; Jones and Donovan, 2001). Responding to the RISK criteria, this study finds that the high-risk-avert people would prefer traditional printed mails and coupons and avoid any digital communications and mobile coupons because of the risk associated with it.

7.2.3 Distribution strategies

This study affirms that TECH plays a role in coupon distribution. People with a high level of TECH would be suitable candidates for mobile coupons, while paper coupons for the people with low levels of TECH.

Additionally, high TECH people correlate with age. In a recent study, the Pew Research Center (2019) revealed that 93% of millennials (ages 24 to 39) and 90% of generation X (ages 40 to 55) (vs. 68% of baby boomers, ages 56 to 74 and 40% of the silent generation, ages 75 to 92) use smartphones. Those younger consumers, such as millennials and generation X, may prefer technology-driven promotional messages more than older consumers like baby boomers and the silent generation. Thus, marketers should target those younger and high TECH people with mobile coupons and approach the older and low TECH people with paper coupons in their distribution strategy.

7.2.4 Product selection strategies

Product type plays a critical role in selecting the CT. Thus, marketers should consider this product type in their coupon strategy. Mobile coupons are technology-driven promotional tool thus, it is no surprise that consumers who have a positive attitude towards TECH would prefer the mobile coupons. This study also discloses that high TECH people have strong UI for mobile coupons and low TECH people prefer paper coupons. Accordingly, marketers should choose mobile coupons for technology-oriented products such as consumer electronics, software, hardware, and consumers' personal devices; and paper coupons for non-technology products such as groceries, fast food, snacks, restaurants, cleaning products, and any non-electrical household items.

Consumer's NFHT characteristic could also be used for production selection. There are some tangible products (e.g., fruits, vegetables, and groceries) that customers prefer to touch during their purchase process and there are some non-tangible services (e.g., airline tickets and downloadable video games) that do not need any touch in their purchase process. Because of this haptics need, mobile coupons may be more acceptable for services while paper coupons are appropriate for tangible products.

7.2.5 Price strategies

The couponing industry is recognised primarily from the price perspective; hence, coupons are perceived to be a promotional tool for price reduction. This study also demonstrates moderate differences in the UI between high- and low-price-sensitive people. The decision of UI differentiates between those two price-sensitive groups of consumers based on coupon format (mobile vs. paper). High-price-sensitive consumers respond differently than less-price-sensitive consumers. Thus, price reduction could be a driving force, in addition to other factors that are also responsible for coupon usage.

7.3 Academic implications

Numerous academic implications emerged from this cross-sectional study. This study adds valuable knowledge to the existing coupon literature by delving into several unexplored areas of consumer's coupon-related behaviour. It is the first study to examine the differences in consumers' perception between mobile and coupons in light of different behavioural attributes.

One of the most interesting findings of this study is about the NFHT factor. Consumers with low NFHT have a positive effect on coupon usage; thus, mobile (vs. paper) coupons are more appropriate for that group. On the contrary, the paper coupon is more effective for high NFHT people because of their preference and desire to touch and feel the paper coupon.

8 Limitations and future research opportunities

The first limitation of this study was related to the data collection. Amazon's MTurk crowd sourcing was used to collect the data for this study where researchers did not have any knowledge about the participants.

This study did not include any comparative analysis among multiple groups, segments, or cultures; therefore, the future studies could perform that kind multi-groups or cross-cultural analysis. No attempt was made to investigate the moderating effects of demographic variables, including gender, age, income, ethnicity, or education. That offers the opportunity for future researchers to investigate those moderating effect.

This study employed only two types of coupons so future researchers could also utilise coupons from other types of products and services in multiple industries to investigate whether the effects differ because of CTs. This study is a cross-sectional where a particular phenomenon is examined at a particular time.

Thus, directional influences introduced in the research model must be interpreted with proper attention. A longitudinal study could be an option for the future researchers.

This study included four moderating variables in its research model. Future researchers could add more moderating factors to the model and the new model could explain a higher percentage of variance in the coupon UI. No restriction was imposed while collecting the sample data for this study. Any adult person who lives in the USA was able to participate in this study. Future researchers could use a specific demographic, including age, gender, income group, profession, or geographic location for their studies, which would provide additional support to the findings and also provide additional empirical evidence to guide marketers. Even though this study has some limitations, it does not contain any fundamental flaw because it followed the strict research principles and guidelines in its research methodology.

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Appendix A

Table A1 List of articles focused on factors influencing consumers to redeem coupons

Factors	*Domain*	*Studies*
Coupon-related factors	Face value of the coupon	Lee and Choeh (2021), Jia et al. (2018), Trump (2016), Wierich and Zielke (2014), Chiou-Wei and Inman (2008), Barat and Paswan (2005), Bawa and Srinivasan (1997) and Leone and Srinivasan (1996)
	Expiry length of coupon	Danaher et al. (2015)
	Coupon duration	Trump (2016)
	Coupon designing	Banerjee and Yancey (2010)
	Method used to distribute the coupon	Danaher et al. (2015)
	Framing effect	Barat and Paswan (2005)
	Product categories	Osuna et al. (2016)
	Time of delivery	Danaher et al. (2015)
	Size of the product class	Chiou-Wei and Inman (2008)

Table A1 List of articles focused on factors influencing consumers to redeem coupons (continued)

Factors	*Domain*	*Studies*
Psychographic factors	Personal innovativeness	Liu et al. (2015), Im and Ha (2012)
Socio-demographic factors	Employment	Chiou-Wei and Inman (2008)
	Education	Chiou-Wei and Inman (2008)
	Consumer's location	Khajehzadeh et al. (2015), Danaher et al. (2015), Chiou-Wei and Inman (2008)
	Distance from redemption location	Chiou-Wei and Inman (2008)
Socio-economic factors	Perception of value and fairness	Pierce and Jiang (2021), Kim and Song (2020), Chatterjee (2007), Oliver and Shor (2003)
	Social ties	Zhao et al., 2016
Behavioural factors	Attitude	Nayal and Pandey (2020) Souiden et al. (2019), Im and Ha (2012), Bacile and Goldsmith (2011), Achadinha et al. (2014), Im and Ha (2013), Hsu et al. (2006), Trump (2016), Barat and Ye (2012)
	Consumer satisfaction	Clark et al. (2013)
	Perceived value	Liu et al. (2015), Zhang and Han (2012)
	Perceived behavioural control	Kang et al. (2006)
	Perceived risk	Im and Ha (2013)
	Perceived usefulness	Im and Ha (2012)
	Price consciousness	Hsu et al. (2006)
	Trust	Zhao et al. (2016), Kim et al. (2017)
	Consumer's coupon knowledge	Barat and Ye (2012)
	Perceived similarity	Zhao et al. (2016)

Appendix B

Questionnaire with references

For each of the following statements, please make your selection out of the five options:

- strongly disagree
- disagree
- neutral
- agree
- strongly agree

Technology acceptance (Davis et al., 1989)
TECH1: Mobile phone is easy to use for couponing.
TECH2: Mobile phone is useful to use for couponing.
TECH3: Mobile phone is simple to operate for couponing.
TECH4: Mobile phone is helpful for couponing.
TECH5: I feel comfortable using mobile phone for couponing.
TECH6: Using mobile phone for couponing is a pleasant experience.
Need for haptics (Peck and Childers, 2003)
NFHT1: I feel more comfortable purchasing a product after physically touching it.
NFHT2: I feel more confident about making a purchase decision after touching a product.
NFHT3: The only way to make sure a product is worthy of purchasing is to touch it.
NFHT4: If I cannot touch a product before purchasing, I am reluctant to purchase it.
NFHT5: While making a purchase decision, seeing the pictures of the product in mobile phone does not give me the same confidence as touching the product.
Smart shopping behaviour (Mano and Elliott, 1997)
SMSB1: I like to gather information about deals and discounts on products as much as possible before going on shopping trips.
SMSB2: I spend a considerable amount of time and effort to search for special deals or discounts.
SMSB3: At times I browse just to get information on deals or discounts for future purchase.
SMSB4: I generally wait until an item is on sale before purchasing it.
Risk averseness (Donthu and Garcia, 1999; Huang et al., 2004)
RISK1: I do not like to take risk.
RISK2: I avoid risky situation.
RISK3: I prefer a task that does not involve any risk.
RISK4: I do not enjoy a task that has any risk.
RISK5: I think taking risk is not a wise decision.
Intension to use (Limayem et al., 2000)
INTN1: I am willing to search for this coupon.
INTN2: I am willing to share my cell phone number to receive this coupon.
INTN3: I am willing to open this coupon for redemption.
INTN4: I am willing to save this coupon for future redemption.
INTN5: I am willing to redeem this coupon at store.

Notes: GNDR: Please indicate your gender.
AGE: Please indicate your age group.
INCM: Please indicate your annual income.
ETNC: Please indicate your ethnic background.

Appendix C

Interaction effects

Coupon type	*Study 1*			*Study 2*		
	Low	*Medium*	*High*	*Low*	*Medium*	*High*
	Technology acceptance level					
Paper	3.39	3.16	2.93	3.25	2.9	2.58
Mobile	2.46	2.66	2.86	2.31	2.54	2.78
	Smart shopping behaviour level					
Paper	3.04	3.26	3.37	2.85	3.04	3.16
Mobile	2.74	2.64	2.59	2.85	2.54	2.33
	Need for haptics level					
Paper	2.50	3.12	3.42	2.08	2.85	3.24
Mobile	2.99	2.37	2.07	2.86	2.29	2.01
	Risk averseness level					
Paper	2.80	3.26	3.95	2.59	3.13	3.95
Mobile	2.74	2.69	2.62	3.01	2.70	2.25

Appendix D

Pattern matrix – study 1

	Factor			
	1	*2*	*3*	*4*
TECH_1	0.96			
TECH_2	0.79			
TECH_4	0.70			
TECH_5	0.69			
TECH_6	0.50			
RISK_3		0.94		
RISK_2		0.80		
RISK_1		0.76		
RISK_5		0.46		
NFHT_1			0.89	
NFHT_2			0.69	
NFHT_5			0.55	
SMSB_2				0.78
SMSB_3				0.64
SMSB_4				0.59
SMSB_1				0.50

Appendix E

Pattern matrix – study 2

	Factor			
	1	*2*	*3*	*4*
TECH3	0.87			
TECH5	0.86			
TECH2	0.86			
TECH1	0.85			
TECH4	0.84			
TECH6	0.78			
RISK5		0.89		
RISK3		0.89		
RISK1		0.88		
RISK4		0.87		
RISK2		0.86		
NFHT3			0.93	
NFHT2			0.88	
NFHT4			0.87	
NFHT1			0.86	
NFHT5			0.80	
SMSB2				0.86
SMSB3				0.78
SMSB4				0.75

Notes: Extraction method: maximum likelihood.
Rotation method: promax with Kaiser normalisation.

Appendix F

Collinearity statistics of two studies

Variable	*Tolerance*		*VIF*	
	Study 1	*Study 2*	*Study 1*	*Study 2*
CT	0.35	0.28	2.87	3.52
TECH	0.74	0.62	1.36	1.63
NFHT	0.52	0.37	1.91	2.67
SMSB	0.87	0.74	1.15	1.35
RISK	0.80	0.34	1.25	2.96

Appendix G

Demographic distributions of two studies

Factors	*Values*	*Frequency*		*Percentage*	
		Study 1	*Study 2*	*Study 1*	*Study 2*
Gender	Male	210	227	48.4	48.8
	Female	212	230	48.8	49.5
	Undisclosed	12	8	2.8	1.7
Age	18 – 30	262	176	60.4	37.8
	31 – 40	125	184	28.8	39.6
	41 – 50	23	47	5.3	10.1
	51 – 60	0	34	0	7.3
	Over 60	0	19	0	4.1
	Undisclosed	24	5	5.5	1.1
Income	No income	82	16	18.9	3.4
	Less than $40,000	95	121	21.9	26.0
	$40,001–$60,000	92	150	21.2	32.3
	$60,001–$80,000	23	57	5.3	12.3
	$80,001–$100,000	34	36	7.8	7.7
	$100,001–$150,000	12	12	2.8	2.6
	More than $150,000	0	0	0	0
	Undisclosed	96	73	22.1	15.7
Ethnicity	Caucasian	163	226	37.6	48.6
	Hispanic or Latino	37	58	8.5	12.5
	Asian	36	49	8.3	10.5
	Native Hawaiian or Pacific Islander	12	2	2.8	0.4
	Native American	56	0	10.6	0
	African American	46	44	12.9	9.5
	Multi-racial	0	38	0	8.2
	Undisclosed	84	48	19.4	10.3