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THE CONSUMER AND SELF-SERVICE TECHNOLOGY

A Capstone Project Presented in Partial Fulfillment of the Requirements for the Degree
Bachelor of Science with Mahurin Honors College Graduate Distinction at Western
Kentucky University

By

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May 2020

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ABSTRACT

The prevalence of self-service technology in discount retail creates the need to consider how consumer's age may affect their perceptions of self-service technology. The purpose of this thesis is to understand how different age groups perceive the reliability of self-service technologies and to understand the resulting effect on adoption and usage of self-service technologies. The study compares respondent's age groups and their perceived reliability, perceived ease of use, perceived security, and perceived control of self-service technology to understand the age group's adoption and use of self-service technology.

Consumers' perceived ease of use, perceived security, and perceived control of self-service technology have been found to be antecedents of perceived reliability of self-service technology. Consumers' perceived reliability of self-service technology has been found to be a determinant of consumers' adoption and use of self-service technology. The study found that compared to younger consumers, older consumers were less likely to report perceived reliability, perceived ease of use, perceived security, and perceived control of self-service technology. This study aims to build on previous research on consumer technology and to have practical implications for discount retailer firms.

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VITA

EDUCATION

Western Kentucky University, Bowling Green, KY Expected Date: May 2020
Mahurin Honors College
B.S. in Marketing
Minor in Political Science
Honors Capstone: The Consumer and Self-Service Technology

Boyle County High School, Danville, KY May 2016

AWARDS AND HONORS

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INTRODUCTION

The introduction of self-service technology (SST) has changed consumers' interactions with retail service providers (Scherer et al., 2015). An increasing amount of transactions in retail and other industries have become automated through self-service channels as opposed to through traditional direct service channels (Dean, 2008). Using self-service technology is beneficial to retailers because it has potential cost savings, it can provide consistent service, etc. (Dean, 2008). Although many consumers do use self-service technology regularly, not all consumers choose to adopt or use self-service technology to facilitate their retail transactions (Elliot & Hall, 2005). The prevalence of self-service technology in discount retail creates the need to consider how consumer's age may affect their self-service technology adoption and use.

The purpose of this thesis is to understand how different age groups perceive the reliability of self-service technologies and to understand the resulting effect on adoption and usage of self-service technologies. Specifically, the study will compare respondents age groups and their perceived reliability, perceived ease of use, perceived security, and perceived control of self-service technology to understand the age group's adoption and use of self-service technology. Consumers' perceived ease of use, perceived security, and perceived control of self-service technology have been found to be antecedents of perceived reliability of self-service technology (Zapan, Wang, & Xu, 2018). Consumers' perceived reliability of self-service technology has been found to be a determinant of

consumers' adoption and use of self-service technology (Zapan et al., 2018; Walker, Craig-Lees, Hecker, & Francis, 2002). In this thesis, self-service technology in discount retailers is referring to self-checkout in grocery stores or other similar brick and mortar retail stores.

This research contributes to the study of consumer technology use in business. This research is useful to others in the research community and to stakeholders in business and retail industries. It is important for marketers and other stakeholders in the retail industry to understand how consumers perceive self-service technology because retailers are moving from direct service to self-service channels and using self-service technology has potential cost savings to retailers (Scherer, Wunderlich, & Von Wangenheim, 2015; Langer, Forman, Kekre, & Sun, 2012; White, Breazeale, & Collier, 2012) Therefore, it would benefit retailers to have consumers adopt and use self-service technology. Strategic recommendations for discount retailers to increase self-service technology use are included based on the results of the study.

LITERATURE AND HYPOTHESES

Self-service technology is a broad term that applies to technological interfaces that enable consumers to produce a service independent of the involvement of a direct service employee (Meuter, Bitner, Ostrom, & Brown, 2005; Dean, 2008). Self-service technology terminology was first introduced in research by Dabholkar (1994) and refers to activities or benefits based on technology and carried out by consumers (Fernandes & Rui, 2014). The introduction of self-service technology has changed how various age demographics interact with service providers and retailers (Scherer et al., 2015). Stakeholders in the discount retail industry face the challenge of getting all age groups to adopt and use self-service technology. Discount retailers also face the challenge of understanding what impact consumers' interaction with self-service technology has on consumers' impressions and future intentions with the retailer (Beatson, Coote, & Rudd, 2006).

Not all consumers choose to adopt or use self-service technology (Elliot & Hall, 2005). Consumers in older age groups may have spent the majority of their lives using direct service instead of self-service (Dean, 2008). Other demographics are also affected by the introduction of self-service technology. For example, some consumers may face cultural and language barriers when using self-service technology (Zapan et al., 2018). It can be concluded that there are numerous factors affecting consumers' adoption and use of self-service technology.

The introduction of self-service technology forces consumers to be active participants rather than a passive audience in completing the transaction process with only oversight and assistance as needed from a direct service employee (Scherer et al., 2015; Prahalad & Ramaswamy, 2000). Before the introduction of self-service technology, consumers were not actively participating in the transaction process because a direct service employee completed the majority of the transaction for the consumer (Scherer et al., 2015). Therefore, with self-service technology, consumers are co-creators of value in the transaction process (Prahalad & Ramaswamy, 2000).

The use of self-service technology appeals to discount retailers because it has many potential benefits. Discount retailers primary benefit of using self-service technology is potential cost savings (Elliot, Mark, Meng, 2013; Scherer et al., 2015). Potential costs savings come from a decrease in labor costs (Elliot et al., 2013; Scherer et al., 2015). At self-service kiosks, consumers are active participants in the transaction process, therefore consumer adjust to fluctuations in demand themselves without retailers having to make costly adjustments in direct service employee levels (Elliot, et al., 2013). Because consumers have an active role in the transaction process, self-service kiosks require fewer employees to operate than direct service kiosks (Elliot et al., 2013; Scherer et al., 2015). Therefore, retailers have to pay and or employ fewer direct service employees (Scherer et al., 2015). It can be concluded that consumers' role as active participants in the self-service transaction benefits the retailer.

Another benefit of self-service technology to discount retailers is increased service quality (Wang, 2017). Using self-service technology decreases the human variability factor from transactions and therefore can increase service quality (Wood

2014; Wang, 2017). Self-service transactions are standardized through technology use, while each direct service transaction can vary due to human variability (Wood, 2014).

Due to self-service technology's many potential benefits to discount retailers, it is imperative for retailers to understand that the benefits of self-service technology cannot be realized unless consumers adopt and use the technology (Meuter et al., 2005). This presents the current pressing issue between retailers, consumers, and self-service technology. The purpose of this thesis is to understand how different age groups perceive the reliability of self-service technologies and to understand the resulting effect on adoption and usage of self-service technologies. This study compares respondents age groups to their perceived reliability, perceived ease of use, perceived security, and perceived control of self-service technology to understand the age group's adoption and use of self-service technology.

Past research has provided insight into variables that affect consumers' adoption of self-service technology. A study by Zapan et al. (2018) developed a four-variable model that understands consumer's adoption and use of self-service technology. The research concludes that consumer's perceived security, perceived control, and perceived ease of use all directly affect perceived reliability of self-service technology (Zapan et al., 2018). The research found that perceived control, ease of use, and security are antecedents of perceived reliability (Zapan et al., 2018). Further, research concludes that consumers' perceived reliability of self-service technology directly affects their adoption and use of self-service technology (Zapan et al., 2018; Walker, et al., 2002). This study will compare respondents perceived reliability, perceived ease of use, perceived control,

and perceived security of self-service technology with respondents age groups to understand the resulting effects on adoption and use of self-service technology.

AGE AND TECHNOLOGY USE

Consumers in older age groups may have spent the majority of their lives using direct service instead of self-service (Dean, 2008). Consumers in older age groups may not view self-service technology as normal or standard for service transactions (Dean, 2008). Adoption and use of self-service technology change consumers' interactions with service providers (Scherer et al., 2015). Because self-service requires consumers to play an active role in the transaction process, consumers may have to change their behavior processes when switching from direct service to self-service. (Scherer et al., 2015; Dean, 2008).

This thesis aims to build on previous research on age and self-service technology use. Research conducted by Dean (2008) aimed to understand the effects of consumers' age on their attitudes toward retail self-service technology use. A summary of Dean's (2008) hypotheses are that compared to younger consumers, older consumers would report less confidence in self-service technology use, older consumers would report wanting human interaction in self-service transactions, and that older consumers would report having less experience using self-service technology. All three of Dean's (2008) hypotheses were supported. According to Dean's (2008) research, compared to younger respondents, older respondents had experience with fewer self-service technologies, had less confidence in using self-service technology, and missed human interaction more.

In other previous research, conclusions on age and self-service technology are mixed. There is currently a limited amount of research on self-service technology and age. Several studies compare age to self-service technology as a minor variable instead of the primary focus of the research. A study by Dabholkar, Bobbit, & Lee (2003) interviewed retail consumers regarding their awareness of, level of use, and liking of self-service technology. From the research's six constructs, no significant differences were found across six age groups (Dabholkar, 2003). A study by Simon & Usunier (2007), found a significant negative correlation between age and preference to use self-service technology over direct service therefore, consumers in older age groups preferred to use direct service instead of self-service technology. In the same study, no significant correlation was found between age and complexity of self-service technology use (Simon & Usunier, 2007). A study by Weijters, Rangarajan, Falk, & Schillewaert, (2007) located in Western Europe hypothesized that compared to older consumers, younger consumers actual use of self-service technology is more strongly related to their attitudes towards using it. There was no significance found between age and the construct, therefore the hypothesis was not supported (Weijters et al., 2007). The results of this thesis will be compared to previous research on age and self-service technology to contribute to literature on age and self-service and consumer technology.

PERCEIVED RELIABILITY

A commonly used definition of reliability is the aptitude to perform a promised a service accurately and dependably (Parasuraman, 1998; Zapan, 2018). Reliability in self-service technology has been defined as the ability to deliver an expected standard at all

times (Taufik, Adzmir, & Saharuddin, 2016). Zapan's (2018) study found that perceived control, perceived ease of use, and perceived security are all antecedents of perceived reliability (Zapan et al., 2018). Perceived reliability directly affects consumers' adoption and use of self-service technology (Zapan et al., 2018; Walker et al., 2002). Consumer's perceived reliability of self-service technology is also a fundamental aspect in their adoption and use of self-service technology because consumers have an active role in the self-service transaction process (Scherer et al., 2015).

Reliability is a multi-dimensional variable and is also defined as the integration of multiple excellent characteristics (Zapan et al., 2018). It can be concluded that perceived reliability of self-service technology is the integration of its antecedents perceived control, perceived security, and perceived ease of use into one construct. Consumers will be more likely to perceive self-service technology as reliable if consumers also perceive the technology to be easy to use, controllable, and secure. The following hypothesis is proposed based on conclusions made from research on age and technology use and perceived reliability.

H1. Compared to younger age groups of consumers, older age groups of consumers will report less perceived reliability of self-service technology.

PERCEIVED SECURITY

Security in self-service technology has been defined as the process of protecting the transaction process in a technology environment (Zapan, 2018). Research also defines security in self-service technology as consumers' perceptions of having no risks or doubts

when using self-service (Li & Suomi, 2009). Perceived security has been found to be an antecedent of perceived reliability (Zapan, 2018). Consumers may not adopt or use self-service technology because they do not perceive it as trustworthy (Kumar & Bose, 2013). Perceived security can be increased by ensuring and practicing the use of internet security features such as firewalls, encryptions, biometrics, smart cards, digital authentications, etc. (Kumar & Bose, 2013).

Consequently, it can be assumed that if consumer have decreased perceived security of self-service technology, they may have similar perceptions about the technology used in direct service transactions. Retailers will most likely use the same technology for financial transactions for both self-service and direct service. Research has concluded that consumers have little tolerance for lack of security, especially when the transaction involves a perceived large amount of money (Zapan et al., 2018). The following hypothesis is proposed based on conclusions made from research on age and technology use and perceived security and perceived reliability.

H2. Compared to younger age groups of consumers, older age groups of consumers will report less perceived security of self-service technology.

PERCEIVED CONTROL

A commonly used definition of perceived control of self-service technology is the volume of control that consumers sense they possess over the service process (Bateson & Hui 1987; Zapan et al., 2018). Research also defines perceived control of self-service technology as consumers' confidence to obtain the desired consequence from the

technology (Zapan et al., 2018). Perceived control has been found as an antecedent to perceived reliability (Zapan, 2018). Perceived control is an important consideration in the adoption of self-service technology because consumers have an active role in the self-service transaction process (Scherer et al., 2015).

Self-efficacy and perceived confidence are important factors included in perceived control. In regard to self-efficacy and perceived control, research has found that when consumers believe that they are not capable of performing a task, they will not engage in it even if they acknowledge that there are not better alternatives (Seltzer, 1983; Meuter et al., 2005). The following hypothesis is proposed based on conclusions made from research on age and technology use and perceived control and perceived reliability.

H3. Compared to younger age groups of consumers, older age groups of consumers will report less perceived control of self-service technology.

PERCEIVED EASE OF USE

Perceived ease of use is commonly defined as the degree to which a user finds technology to be free from effort (Wang, 2017; Davis, Bagozzi, & Warshaw, 1989). Research has found perceived ease of use to be an antecedent to perceived reliability (Zapan, 2018). Perceived ease of use is important factor in consumers' adoption of self-service technology because consumers have an active role in the self-service process (Scherer et al., 2015). Research concludes that ease of use reduces risks associated with self-service technology adoption and use because consumers think they spend less time

adopting the new technology and that they will make fewer errors using it (Shamdasni et al., 2008; Zapan et al., 2018).

When self-service technology is complicated and difficult to understand, it affects user's confidence in their ability to use the technology (Wang, 2017). Subsequently, when ease of use and confidence are decreased, consumers are less likely to use self-service technology because consumers may not see the benefits of self-service technology use (Wang, 2017). Research concludes that simple and user-friendly technology can more easily attract users from varying backgrounds (Zapan et al., 2018). The following hypothesis is proposed based on conclusions made from research on age and technology use and perceived ease of use and perceived reliability.

H4. Compared to younger age groups of consumers, older age groups of consumers will report less perceived ease of use of self-service technology.

METHODOLOGY

MEASUREMENT INSTRUMENT

The purpose of this thesis is to understand how different age groups perceive the reliability of self-service technologies and to understand the resulting effect on adoption and usage of self-service technologies. In order to accomplish this, a quantitative study was conducted. Data was collected using a questionnaire.

The questionnaire for this thesis consists of thirteen items (Table 1) and five demographic questions (Tables 2 - 6). In order to examine the hypotheses, reflective measures were extracted from previous research. Each of the thirteen items were adapted from previous research to make them suitable for the framework of this thesis. The surveyed sample responded to the thirteen items on the questionnaire using a seven point Likert scale anchored at '1 = entirely disagree' to '7 = entirely agree'.

Each item on the questionnaire was categorized into a construct (table 1). One construct was developed for each hypothesis. The construct perceived reliability was developed for Hypothesis One (H1). The construct perceived security was developed for Hypothesis Two (H2). The construct perceived control was developed for Hypothesis Three (H3). Lastly, the construct perceived ease of use was developed for Hypothesis Four (H4). Items were put into constructs based on information from previous research and the constructs that previous research used for each of the adapted items.

Cronbach's alpha was used to further measure the reliability of the constructs.

Cronbach's alpha is widely used to measure internal consistency and reliability (Zapan et al., 2018). A Cronbach's alpha of greater than 0.700 is thought to have good reliability (Zapan et al., 2018). As shown in Table 1, each construct had a higher Cronbach's alpha than suggested by researchers except for the construct perceived control. The construct perceived control has a Cronbach's alpha of 0.699, rounded up to 0.70. The construct was determined to be suitable for this study because its Cronbach's alpha (0.699) can be rounded up to the Cronbach's alpha suggested by researchers (0.700) and previous research used the two items together in a construct.

Table 1
Results

Constructs	Cronbach's alpha	Items	Reflective measures	Based on
Perceived Reliability	0.85	PR1	Using self-checkout saves time.	Kumar & Bose, 2013
		PR2	Using self-checkout is convenient.	Kumar & Bose, 2013
		PR3	Self-checkout is very reliable.	Zapan et al., 2018
		PR4	Self-checkout is more reliable than people in providing services.	Zapan et al., 2018
Perceived Ease of Use	0.84	EU1	Self-checkout is easy to use.	Zapan et al., 2018
		EU2	Self-checkouts have clear instructions.	Zapan et al., 2018
		EU3	Overall, I am satisfied with self-checkout when I use it.	Zapan et al., 2018
Perceived Security	0.76	PS1	The risk associated with using self-checkout is low.	Zapan et al., 2018

		PS2	I feel safe using self-checkout.	Zapan et al., 2018
Perceived Control	0.70	PC1	I can usually figure out technology products and services without help from others.	Elliot et al., 2013
		PC2	Others come to me for advice about technologies.	Elliot et al., 2013

PARTICIPANTS AND DATA COLLECTION

All questionnaires were distributed digitally through email and social media links via the survey software website, Qualtrics. There were two hundred and ninety-three total survey responses. Two hundred and ninety-two survey responses were considered usable. One survey response was considered unusable because all questions were left blank. The majority of questions were completed on the remaining two hundred and ninety-two responses. The questionnaire was intended to be distributed to any individual over the age of eighteen in order to maximize potential reach to discount retail customers. Brick and mortar discount retailers have a large target market and distribution of customers (Dean, 2008). Tables 1-5 show the demographic statistics of the survey respondents. All data in this thesis is collected using SPSS Version 26.

Table 2
Gender of Respondents

Variable and Dimensions	Frequency	Percentage
Male	70	24.0
Female	217	74.3
Transgender	0	0
Not listed	1	.3
Prefer not to answer	2	0.7

Missing	2	0.7
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Table 3
Ethnicity of Respondents

Variable and Dimensions	Frequency	Percentage
White	273	93.5
Hispanic or Latino	4	1.4
Asian or Pacific Islander	4	1.4
Black or African American	4	1.4
Native American or Alaskan Native	1	0.3
Other	3	1.0
Missing	3	1.0

Table 4
Annual Household Income of Respondents

Variable and Dimensions	Frequency	Percentage
Under \$24,999	33	11.3
\$25,000 – 49,999	33	11.3
\$50,000 - \$74,999	62	21.8
\$75,000 - \$99,999	43	14.7
\$100,000 - \$124,999	51	17.5
Over \$125,000	63	22.1
Missing	7	2.4

Table 5
Highest Education Completed of Respondents

Variable and Dimensions	Frequency	Percentage
No formal education	0	0.0
High School or GED	12	4.1
Vocational / Trade / Technical School	2	0.7
Some College	43	14.7
Associate’s Degree	12	4.1
Bachelor’s Degree	110	37.7
Master’s Degree	75	25.7

PhD or other advanced professional degree	38	13.0
Missing	0	0.0

Table 6
Age of Respondents

Variable and Dimensions	Frequency	Percentage
18 to 24	59	20.2
25 to 29	10	3.4
30 to 34	19	6.5
35 to 39	31	10.6
40 to 44	39	13.4
45 to 49	29	9.9
50 to 54	17	5.8
55 to 59	22	7.5
60 to 64	23	7.9
65 to 69	17	5.8
70 to 74	18	6.2
75 to 79	5	1.7
80 to 84	2	0.7
85 to 89	1	0.3
90 to 94	0	0.0
95 and older	0	0.0
Missing	0	0.0

RESULTS

Measures of analysis were taken to evaluate the significance of the relationships between respondents age groups and the four constructs: perceived reliability, perceived control, perceived security, and perceived ease of use. Correlation tests were run using SPSS for each of the four constructs. Correlations were used in previous research on self-service technology. Specifically, Zapan’s research model that this study was adapted from uses correlations as one of the main measures of analysis, therefore adding validity to this study’s use of correlations (Zapan et al., 2018).

Significant correlations were found between each of the four constructs and age (table 3). Therefore, all four hypotheses were supported by the data in the study. Factors are considered significant at ($p < 0.05$) and very significant at ($p < 0.001$) (Zapan et al., 2018). Therefore, three of the four correlations were considered very significant at ($p = 0.000$) and one of the four correlations was considered significant at ($p = 0.005$).

Table 3
Results

Hypothesis	Construct	Pearson Correlation (r)	P-value	Conclusion
H1	Perceived Reliability	-0.312	.000***	Supported
H2	Perceived Security	-0.165	.005**	Supported
H3	Perceived Control	-0.319	.000***	Supported
H4	Perceived Ease of Use	-0.391	.000***	Supported

Note: *** ($p < .001$), ** ($p < .05$)

Hypothesis One was supported by a significant correlation between the construct perceived reliability and age. A significant correlation was found between perceived reliability and age ($p = 0.000$, $r = -0.312$). There is an inverse relationship between perceived reliability and age. Therefore, as respondent's ages increase, the less likely respondents are to report perceived reliability of self-service technology. As respondent's ages decrease, the more likely respondents are to report perceived reliability of self-service technology. Therefore, Hypothesis One, compared to younger age groups of consumers, older age groups of consumers will report less perceived reliability of self-service technology, was supported.

Hypothesis Two was supported by a significant correlation between the construct perceived security and age. A significant correlation was found between perceived security and age ($p = 0.005$, $r = -0.165$). There is an inverse relationship between perceived security and age. Therefore, as respondent's ages increase, the less likely respondents are to report perceived security. As respondent's ages decrease, the more likely respondents are to report perceived security. Therefore, Hypothesis Two, compared to younger age groups of consumers, older age groups of consumers will report less perceived security of self-service technology, was supported.

Hypothesis Three was supported by a significant correlation between the construct perceived control and age. A significant correlation was found between perceived control and age ($p = 0.000$, $r = -0.319$). There is an inverse relationship between perceived control and age. Therefore, as respondent's ages increase, the less likely respondents are to report perceived control. As respondent's ages decrease, the more likely respondents are to report perceived control. Therefore, Hypothesis Three, compared to younger age groups of consumers, older age groups of consumers will report less perceived control of self-service technology, was supported.

Hypothesis Four was supported by a significant correlation between the construct ease of use and age. A significant correlation was found between ease of use and age ($p = 0.000$, $r = -0.391$). There is an inverse relationship between perceived ease of use and age. Therefore, as respondent's ages increase, the less likely respondents are to report perceived ease of use. As respondent's ages decrease, the more likely respondents are to report perceived ease of use. Therefore, Hypothesis Four, compared to younger age

groups of consumers, older age groups of consumers will report less perceived ease of use of self-service technology, was supported.

DISCUSSION

THEORETICAL MATTERS

This study was based on a model developed by Zapan et al. (2018). In Zapan's model, perceived security, perceived control, and perceived ease of use were found to be antecedents of perceived reliability (Zapan et al., 2018). Previous research found perceived reliability to directly affect consumers' adoption and use of self-service technology (Zapan et al., 2018; Walker et al., 2002). This study found that respondents in older age groups were less likely than respondents in younger age groups to report perceived reliability, perceived control, perceived security, and perceived ease of use. Based on the findings of this study, it can be concluded that respondents in older age groups would be less likely to adopt and use self-service technology because respondents in older age groups were less likely to report perceived reliability (Zapan, 2018).

This study confirms the findings of Dean (2008) that increasing age has a negative effect on consumer's perceptions of self-service technology. Although this study and Dean's (2008) study compares age to different constructs, the same general results were found. All three of Dean's (2008) hypotheses were supported by his data. According to Dean's (2008) research, compared to younger respondents, older respondents had experience with fewer self-service technologies, had less confidence in using self-service technology, and missed human interaction more. This study furthers Dean's findings by understanding that consumers in older age groups are less likely to

report perceived reliability, perceived control, perceived ease of use, and perceived security of self-service technology.

An important comparison to make between Dean's (2008) study and this study is the period of time that has elapsed between the two studies. Approximately twelve years have elapsed between this 2020 study and Dean's 2008 study. Given the widespread implementation of self-service technology in discount retail over the last decade, it is reasonable to believe that consumers' attitudes, perceptions, and behaviors of consumers towards self-service technology could have changed. The results of this study confirm that in general, consumers' perceptions of self-service technology have not changed between 2008 and 2020. The results of both studies confirm that increasing age has a negative effect on consumer's perceptions of self-service technology.

MANAGERIAL RECOMMENDATIONS

As discussed previously, self-service technology has many potential benefits to discount retailers. However, it is important for retailers to understand that the benefits of self-service technology cannot be realized unless consumers adopt and use the technology (Meuter et al., 2005). It would benefit retailers to have consumers of all age groups adopt and use self-service technology to maximize potential reach.

This study found that consumers in older age groups are less likely to report perceived reliability, perceived ease of use, perceived control, and perceived security of self-service technology. Perceived reliability is found to directly affect consumers' adoption and use of self-service technology (Walker et al., 2002; Zapan et al., 2018).

Therefore, discount retail firms should take measures to ensure the reliability, ease of use, control, and security of their self-service technology products. Firms can work with self-service technology companies to develop a product that is customized for their company and tested for ease of use, security, reliability, and control by consumers. Further, firms should also specifically test the product with consumers in older age groups to ensure their needs are being met. Firms should guarantee that the product is reliable, is easy to use, and has a high level of information security.

Previous research found that promoting the reliability of self-service technology can increase consumers' confidence and perceived control (Ganguli & Roy, 2011; Zapan, 2018). Subsequently, firms should use slogans like 'Reliability Guaranteed' and 'You Are Confident Because We are Reliable' when marketing technology-mediated services, or print the slogans onto the self-service technology products for users to observe during the transaction process (Zapan, et al., 2018). The slogan's promotion of the reliability of self-service technology may increase consumers' confidence and perceived control (Ganguli & Roy, 2011; Zapan, 2018). Further, not all consumers choose to adopt or use self-service technology (Elliot & Hall, 2005). Firms promoting the reliability of self-service technology and guaranteeing reliability, ease of use, and security may give consumers an incentive to use self-service technology.

Firms could offer consumers incentives to use self-service technology. Offering incentives for using self-service kiosks may decrease some consumers' perceptions that the purpose of self-service technology is to reduce costs for firms. Firms could offer a small incentive such as bonus points on rewards cards every time a consumer uses

self-service over a month. The intended consequence would be that consumers would use self-service multiple times over a month and then adopt the technology.

Firms could make self-service easier to use for consumers in older age groups by increasing text size on displays, having automated voice responses speak loudly and clearly, clearly labeling all functions, etc. Firms could increase consumers' perceived reliability of self-service technologies by strategically choosing employees in older age groups to operate self-service kiosks. For consumers in older age groups, the presence of a peer in their age group may incentivize their use of self-service technology or improve their perceived reliability of self-service technology (Dean, 2008).

LIMITATIONS AND IMPLICATIONS FOR FURTHER RESEARCH

LIMITATIONS

This study has several limitations. Only one form of self-service technology was studied, self-service in brick and mortar discount retail. For this reason, the findings of this study may not generalize other forms of self-service technology. Self-service technology may be improved over time. Therefore, the findings of this study may be time-context dependent and may not generalize future forms of self-service technology (Dean, 2008).

Questionnaires were only distributed digitally via social media and email links. No paper questionnaires were distributed. The questionnaire distribution could have missed a group of potential respondents who do not use social media or email actively or at all because of their perceptions of technology. This is significant because the study focused on respondent's perceptions of technology. If paper questionnaires were distributed, responses could have potentially been different. In the original plan for the study, both paper and digital questionnaires were to be distributed. Paper questionnaires were to be distributed to strategic locations throughout the local community in which the study was conducted. Digital questionnaires were to be distributed through email and social media links. Adaptations to this plan were made in response to current COVID-19 regulations and suggestions made by state and federal legislation at the time of survey distribution. Therefore, no paper surveys were distributed.

The lack of diversity within the sample creates an additional limitation. While ranges in age groups and annual household income were fairly diverse, the sample lacked diversity in respondent's ethnicity, gender, and education level. Approximately ninety four percent of the sample identified as Caucasian (table 2.2). The ethnicity of the sample is not representative of the United States or Kentucky's populations. According to the U.S. Census Bureau (n.d.), approximately eighty-seven percent of Kentucky's population are Caucasian, eight percent are Black or African American, four percent are Hispanic or Latino, and other minority ethnicities make up the remaining percent of the population. According to the U.S. Census Bureau (n.d.), approximately seventy-seven percent of the United States population are Caucasian, eighteen percent are Hispanic or Latino, thirteen percent are Black or African American, and other minority ethnicities make up the remaining percent of the population. The results of the study could have potentially been affected by the ethnicities of the sample not being representative of the population. Furthermore, the results of the study may not be generalized to the population.

The sample lacked diversity in education level as well. The sample was highly educated compared to the United States and Kentucky's populations. A combined majority of approximately ninety-five percent of respondents identified as having completed some level of higher education, from some college to a PhD or other advanced professional degree (table 2.4). A combined minority of approximately five percent respondents identified as completing High School, GED, or Technical School. The education level of the sample is not representative of the United States or Kentucky's populations. According to the U.S Census Bureau (n.d.), approximately eighty-eight

percent of the United States' population are High School graduates, and thirty two percent of the population have a Bachelor's degree or higher. According to the U.S. Census Bureau (n.d.), approximately eighty-six percent of Kentucky's population are high school graduates, and approximately twenty-four percent of the population have a Bachelor's degree or higher. The results of the study could have potentially been affected by the education levels of the sample not being representative of the population. Furthermore, the results of the study may not be generalized to the population.

Further, the sample lacked diversity in gender. Approximately seventy-four percent of the sample identified as female and approximately twenty-four percent of the sample identified as male. The remaining approximate two percent of the sample identified that either their gender was not listed in the options, they preferred not to say, or they did not answer. The genders of the sample are not representative of the United States or Kentucky's populations. According to the U.S. Census Bureau, approximately fifty-one percent of Kentucky's population identify as female (n.d.). According to the U.S. Census Bureau, approximately fifty-one percent of the United States population identify as female, other statistics are not given (n.d.). The results of the study could have potentially been affected by the genders of the sample not being representative of the population. Furthermore, the results of the study may not be generalized to the population.

IMPLICATIONS FOR FURTHER RESEARCH

Previous research points out the need for comparative studies of multiple demographic variables and self-service technology (Wang, 2017). Future research should

focus on understanding different demographics' adoption and use of self-service technologies. Demographic variables that should be analyzed in future research are gender, ethnicity, cultural background, education level, and income.

This study does not directly measure consumer's technology-acceptance behavior. This study focuses on understanding respondent's adoption and use of self-service technology by determining respondents perceived reliability and antecedents of perceived reliability. This is because previous research found perceived reliability to directly affect consumers' adoption and use of self-service technology (Zapan et al., 2018; Walker et al., 2002). Future research should take further measures in understanding consumers' technology acceptance behavior. Future research could use a longitudinal study to understand how consumer's adoption and use of technology is affected by their perceived reliability, perceived control, perceived ease of use, and perceived security (Wang, 2017). The longitudinal study could consist of surveying consumers in a brick and mortar discount retail store before and after the use the consumer uses self-service technology to complete their service transaction (Wang, 2017).

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APPENDIX A

Survey

IMPLIED CONSENT DOCUMENT

Project Title: The Consumer and Self-Service Technology
Investigator: Daisy Brosi, Marketing Department, daisy.brosi177@topper.wku.edu

You are being asked to participate in a project conducted through Western Kentucky University. The University requires that you give your agreement to participate in this project. You must be 18 years old or older to participate in this research study. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have. You should keep a copy of this form for your records.

1. **Nature and Purpose of the Project:** The purpose of this study is to expand research on consumers use of self-checkout systems.
2. **Explanation of Procedures:** Please complete this survey to the best of your ability. The survey should take approximately 5-10 minutes to complete.
3. **Discomfort and Risks:** There is minimal risk associated with participation in this survey. The probability of harm anticipated is no greater than I would encounter in everyday life.
4. **Benefits:** There are no personal benefits to completing this survey. Participating in this survey aids in the advancement of research.
5. **Confidentiality:** All responses are anonymous. No identifying information will be collected. Records will be viewed, stored, and maintained in private, secure files only accessible by the P.I. for three years following the study, after which time they will be destroyed.
6. **Refusal/Withdrawal:** Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty. You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.

Your continued cooperation with the following research implies your consent.

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY THE WESTERN KENTUCKY UNIVERSITY INSTITUTIONAL REVIEW BOARD Robin Pyles, Human Protections Administrator TELEPHONE: (270) 745-3360

WKU Thesis- The Consumer and Self-Service Technology

Start of Block: Default Question Block

Q1 Using self-checkout saves time.

- Entirely Disagree (1)
- Mostly Disagree (2)
- Somewhat Disagree (3)
- Neither Agree nor Disagree (4)
- Somewhat Agree (5)
- Mostly Agree (6)
- Entirely Agree (7)

Q3 Using self-checkout is convenient.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q4 Self-checkout is very reliable.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q5 Self-checkout is easy to use.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q6 Overall, I am satisfied with self-checkout when I use it.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q7 Self-checkouts have clear instructions.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q8 Self-checkout is more reliable than people in providing services.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q9 The risk associated with using self-checkout is low.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q10 I feel safe using self-checkout.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q11 I can usually figure out technology products and services without help from others.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q12 Other people come to me for advice about technologies.

- Entirely Disagree (1)
 - Mostly Disagree (2)
 - Somewhat Disagree (3)
 - Neither Agree nor Disagree (4)
 - Somewhat Agree (5)
 - Mostly Agree (6)
 - Entirely Agree (7)
-

Q13 In the next six months, I intend to use self-checkout frequently.

- Yes (1)
 - No (2)
-

Q15 I can use self-checkout well.

Yes (1)

No (2)

Q17 Gender.

Male (1)

Female (2)

Transgender (3)

Not listed (4)

Prefer not to say (5)

Q18 Age.

- 18 to 24 (1)
 - 25 to 29 (2)
 - 30 to 34 (3)
 - 35 to 39 (4)
 - 40 to 44 (5)
 - 45 to 49 (6)
 - 50 to 54 (7)
 - 55 to 59 (8)
 - 60 to 64 (9)
 - 65 to 69 (10)
 - 70 to 74 (11)
 - 75 to 79 (12)
 - 80 to 84 (13)
 - 85 to 89 (14)
 - 90 to 94 (15)
 - 95 or older (16)
-

Q19 Ethnicity.

- White (1)
 - Hispanic or Latino (2)
 - Black or African American (3)
 - Asian or Pacific Islander (4)
 - Native American or Alaskan Native (5)
 - Other (6)
-

Q20 Annual household income.

- Under \$24,000 (1)
 - \$25,000 - \$49,999 (2)
 - \$50,000 - \$74,999 (3)
 - \$75,000 - \$99,999 (4)
 - \$100,000 - \$125,000 (5)
 - Over \$125,000 (6)
-

Q21 Highest education level completed.

- No formal education (1)
- High School or GED (2)
- Vocational / Trade / Technical School (3)
- Some College (4)
- Associate's Degree (5)
- Bachelor's Degree (6)
- Master's Degree (7)
- PhD or other advanced professional degree (8)
- Other (9)

End of Block: Default Question Block
