Introduction

Generation Z (Gen Z), those born from 1997 onward, engage mobile applications more than any other generation (Dimock, 2019). Based on data collected in the third quarter of 2020, Gen Z invests over 4.1 hours each month in mobile apps, which is 10 percent longer in duration than older generations. They engage more frequently with apps more often, connecting with 20 percent more sessions averaging 120 sessions per month, per app (Perez, 2020). Much of diffusion research has considered large-scale adoptions (i.e., smartphones, Internet, cable). The most influential technologies in life may become implemented in very minor activities of daily life (Partala and Saari, 2015). In many ways, because these technologies build on the adoption of prior technology (the mobile device), it could be that this facilitates a difference in the adoption process for technology (Verkasalo, et al., 2010). The present study seeks to understand a case in just such an innovation — Internet-mediated mobile applications for ordering pizza. More importantly, this study helps shed light on the consumer motivations in Internet-mediated applications — and the technological affordances that facilitate...
those motivations — that make them appealing for purchasing behaviors.

Gen Z have demonstrated to be especially enthusiastic about using mobile devices for food delivery. Twenty-two percent of U.S. adults are using food delivery services and among that population Gen Z ranks month over month the most likely to get delivery (Wilson, 2020). This is the sort of daily interaction with technology that might seem minor on the surface but in practice represents a significant shift in preferences in the purchasing process and communication about purchasing. This study utilizes focus group feedback then data analysis to predict and examine male Gen Z purchasing preferences using mobile applications. Conceptualized through the lens of diffusion of innovation theory, we seek to provide a better understanding regarding the nature of diffusion stages through implementation and confirmation.

**Diffusion of innovation theory**

In the study of new communication technologies, diffusion of innovation explains and predicts stages of innovation adoption (Atkin, *et al.*, 2015). Broadly, diffusion research helps provide shape for the adoption process in innovations ranging from social media (Hunt, *et al.*, 2012) to mobile phones (Leung and Wei, 2000) to interactive television (Leung and Wei, 1998). Diffusion in this research is commonly refined as processing innovation through specific channels, over time, within users of a social system. The value of diffusion theory lies in its utility — it captures the activity that must occur for an innovation to move from inception to acceptance in a large population (see Perreault and Bell, 2020; Perreault and Ferrucci, 2020; Perreault and Stanfield, 2019). The main elements in the diffusion of innovations are the innovation, communication channels, time, and a social system (Rogers, 2004). These innovations are defined by the characteristics of relative advantage (stronger than its predecessor), compatibility (consistent with the values and needs of the adopter), complexity (difficulty in using the innovation), trialability (limited basis with which an adopter can experiment with an innovation), and observability (degree to which the results of innovation adoption are seen) (Rogers and Shoemaker, 1971). These characteristics are integral in the rate of adoption of an innovation, yet operate differently among subpopulations. For example, complexity may deter baby boomers but not Gen Z adopters.

The process of an innovation adoption starts with the stage of obtaining knowledge attributes perceived by the potential adopter and attributes the potential adopter gathers that others perceive. In the second stage, the potential adopter forms their own attitude toward an innovation. In the third stage, the potential adopter decides to adopt or reject the innovation. In the fourth stage, the innovation is implemented and finally, the decision to adopt is confirmed (Rogers, 2004). While such stages capture much of this process, the innovation described implicitly assumes a mass media culture rather than the media of social media and mobile phones (Atkin, *et al.*, 2015).

The present study seeks to assess the implementation stage and the confirmation stage of adoption. As with much diffusion research, we are interested in a particular adopting group — in this case, male Generation Z consumers. A key variable in diffusion research is innovativeness or the degree to which individuals or select social groups adopt earlier than other members in the social system (Rogers, 2004). Prior research has indicated that individuals who are more affluent, younger, and educated tend to adopt new technologies sooner (Dutton, *et al.*, 1987; Barnett and Vishwanath, 2017). Generally, early adopters tend to have interpersonal connections within networks and have mass media exposure. Scholarship in this field has argued that for the theory to progress it needs to transition from modality and hardware paradigms to emerging mobile applications (Atkin, *et al.*, 2015). This change in focus allows for the theory to better appropriate for the unique technologies emerging in modern digital technology.

This study builds on contemporary usage in mobile applications, related to consumer purchasing decisions. It builds on literature by offering greater insight into the adoption process with mobile application among the highly pursued adoptive population of Gen Z consumers.

**Gen Z is the “Internet generation”**

At times known as the post-Millennial generation, Generation Z consumers are currently in colleges and increasingly entering the workforce (Schroth, 2019; Bassiouni and Hackley, 2014; Fister-Gale, 2015). Gen Z
shares many traits with the Millennial generation, but there are noticeable differences as well. Gen Z is connected through the Internet and operate as members within various networks (Ozkan and Solmaz, 2015). As with Millennials, Gen Z primarily communicates via digital devices as opposed to in-person communication (see Mueller, et al., 2019; Hassler, et al., 2019). Millennials were well known for approaching prior generations with a blame mentality. While not extensive, it is still present among Gen Z (Schroth, 2019). Gen Z is often described in association with narcissism, but this is actually a fairly standard generational trait that is pointed out for new generations. In other words, narcissism is more likely a product of the youthfulness of the generation than reflective of the generation itself (Schroth, 2019). Finally, like Millennials, Gen Z tends to struggle with standard rules of conversations — listening, asking questions, and the ability to interject in a respectful manner — given their training in digital communication. Hence, it makes sense that they would then prefer to stick to operating in the ways they’re most familiar — digitally.

Gen Z broadly tends to be an achievement-oriented generation, that has the benefit of leaning on greater economic well-being, more education, and more ethnic and racial diversity than any prior generation. That said, they are also the least likely generation to have worked prior to college and the most prone to depression (Schroth, 2019). This generation heavily relies on technology, given that they were the first generation born into an online world, in which they can engage with brands digitally (Bernstein, 2015). Gen Z regards this technology primarily as a tool (Van den Bergh and Behrer, 2016) and despite their frequent use of digital devices, are not addicts; this is merely how most things in their world get done (Ozkan and Solmaz, 2015). Given that the expectation is continual work, play, and communication via digital devices, Gen Z prefer devices that are wireless and touch oriented, as opposed to those that are wired (Ozkan and Solmaz, 2015). In short, this is a generation ideally geared for mobile devices and mobile applications.

As a consumer culture, Gen Z is primarily characterized by an interest in usability, an interest in new technology, a desire for a feeling of safety, and a desire to escape reality (Wood, 2013). In addition, research has found that businesses must deal with Gen Z’s consumer expectations for ease, speed of transactions, and information provision (Priporas, et al., 2017; Sözer, 2019). In a study of ad integration into mobile video games, Gen Z participants disliked advertising because it impeded speed of access (Kostov, 2020).

Schroth (2019) argues that as a result of growing up with more protective parents, and more safety, Gen Zers inadvertently were stripped of their opportunity to gain valuable life skills necessary to autonomous adulthood. It makes sense Gen Z would prefer simplicity in technology given the fear that if technology is more complex, they may struggle to operate it.

Gen Z consumers spend in excess of US$142 billion annually and hold influence over more than US$600 billion of household purchases (Duffett, 2020). Ninety-five percent own a smartphone and of that segment, over 55 percent use their phone over five hours per day. Approximately one quarter (26 percent) use their devices 10 or more hours per day. The Gen Z consumer can be nocturnal. Sixty-five percent reported being on their phones past midnight several times per week, while 29 percent are on, past midnight, every night. The relationship built with personal devices is so strong that 31 percent report feeling uncomfortable if separated from their phones for 30 minutes or less (Boucher, 2018). Francis and Hoefer (2018) profiled the Gen Z consumer as living in multiple realities, based on identities across numerous mobile platforms. They are digital natives, born into the Internet age with its wide array of devices. They can be difficult to place into a consumer segment, viewing themselves as unique. Most times altruistic, Gen Z perceive society through a realist perspective, are ethical, and see future potential as unlimited. The Gen Z consumer is known as “communaholic” and “dialoguer.” They strive for connection and digital narrative. Gen Z consumers frequently connect and order through smartphone applications. That makes app ordering good for business, if the business can afford the technology necessary to implement custom ordering and pay applications. Studies indicate consumers who order online, spend more. They are also likely to purchase more frequently, through portals that save customer credit card information and preferences. Some of the larger pizza chains, such as Domino’s, report 50 percent of sales originate through smartphone orders (International Franchise Association, n.d.).

**Mobile application as Internet gateway to purchasing behaviors**

Based on a dramatic increase in the use of smartphones and other personal digital devices, manufacturers and
marketers are making substantial investments in mobile applications that allow for two-way communication and subsequent sales (Jung, et al., 2019). It is important to understand how consumers adapt to and engage these applications prior to making purchases. Mobile applications assist in helping consumers develop purchasing patterns. When such patterns are set, research indicates it will lead to repeat orders. Lemmerer and Menrad (2017) suggested that both attitudes toward purchase and habits that exist at the time of purchase are in some form interrelated. The attitude and habit indicators were tested on two food product categories. The results indicated attitudes and habits may be linked, however strong habits hold more persuasive power than attitudes, even when attitudes were also strong. Lemmerer and Menrad (2017) concluded that marketers must develop advertising messages that break habitual purchasing behavior.

The dimensions that most affect mobile applications related to purchase are subjective quality, functionality, engagement, aesthetics, and information quality (Stoyanov, et al., 2015). The attributes of disinhibition, impulsivity, and ubiquity are predictors of increased use (Jung, et al., 2019). Men have been identified as using mobile applications more impulsively while using online dating apps, often responding to a user before reviewing their dating profile. Both men and women have heightened disinhibition and engage a more diverse group of potential partners related to height, race, and education. Conversely, females show more impulsive behavior through Internet-mediated fashion apparel shopping.

A study related to the fashion industry studied the stimulus, organism, and response model where purchase behavior was prompted through the social platform Instagram. Impulse purchases were noted among female, but not male, participants (Djafarova and Bowes, 2021). At present, the retail sector is embracing mobile applications to assure consumers are being offered both at-store and online digital engagement (van Heerde, et al., 2019). While some customers remain off-line and shop exclusively at brick and mortar locations, another segment resides far from the physical store and chooses to make purchases through the Internet. When introduced to a mobile application, off-line customers found mobile applications complement the in-store experience they are used to. Mobile apps generated additional incremental sales among customers logistically removed from the retail location. Mobile applications are best viewed as a segmentation strategy to enhance overall sales.

When Gen Z consumers engage food related apps, recent studies indicate a desire for discounting, multiple payment options, and discounting as a promotional tool (Pandey, et al., 2021). As Gen Z adapts they find alternate applications across platforms and may prefer placing food orders through messaging apps (Ramgade and Kumar, 2021). During the recent COVID-19 pandemic, online food delivery (OFD) became a predominant form of ordering. It was reported customers that noted innovation in the process perceived increased experiential value (Gavilan, et al., 2021). Variables tested in online food ordering in Thailand illustrate hedonic pleasure and usefulness most affected attitude towards purchase. Attitude, in turn, influenced overall intention to purchase. It was noted simplicity did not hold effect on attitude (Tunsakul, 2020). An increased demand in technology related to convenience and ease of use has created an increased accessibility to unhealthy foods in the OFD ordering process. A database compiled in geographic areas representing high concentrations of Gen Z consumers in Australia and New Zealand indicated 74 percent of foods ordered were deemed unhealthy. Of all popular OFD purchase choices, 86 percent were labeled discretionary (Partridge, et al., 2020).

The complexities, and opportunities, in marketing to Gen Z consumers leads us to the following research questions:

\[ RQ1: \text{How does perception of mobile application use affect desire to purchase?} \]
\[ RQ2: \text{What psychological dimensions affect mobile application use as part of the purchase process?} \]

**Methods**
This study followed the mixed methods model designed by Soh, et al. (2009) and modeled in Mueller and Perreault (2019). In the original study, Soh, et al. utilized focus groups to define themes and adjectives depicting the construct of trust, then applied those findings as measures in survey data and testing. Respondents studied in this analysis are male Gen Z consumers reflecting on mobile apps in the pizza purchasing process. Recent studies indicate males are the predominant consumers in purchasing technology (Statista, 2018). Sixty-six percent define their diet at “unrestricted” and while this segment searches out healthy food, they seldom restrict or ban specific foods. In a recent open-ended survey, pizza was written in as their favorite food choice (YPulse, 2019).

**Focus groups**

Focus groups were conducted to explore respondent engagement with current mobile apps associated with online pizza purchase. Respondents were chosen based on convenience and judgmental sampling, among the population at a large southeastern state university in the United States. Scripting for qualitative sessions included a description of the different online ordering processes, then a discussion of respondent experience using pizza-ordering apps.

There was an ethnographic component in the focus group; respondents were asked to access the Internet and choose a pizza retailer offering online food delivery (OFD) options. Observations for navigation, appealing aspects, and suggested improvements were recorded. Common themes included familiarity with Internet-associated purchase; frequency of purchase; perception of pizza as food choice; preference for sourcing of food; loyalty to perception of good service; must feel comfortable with the Internet; must understand each of the features an app provides; price breaks and discounts (“codes” are better than coupons); “addiction” to the Internet prompts app use for purchase; being with friends prompts purchase; visual prompts are essential; cross-branding between the pizza brand’s Web site and app is essential.

Following the usage exercise, respondents were given note cards and asked to write down four or five adjectives that best describe their online purchasing experience.

**Development of survey measures**

Insights from the focus group sessions were compiled among survey moderators, related to themes expressed for Internet-mediated purchase. The themes were scrutinized for commonalities, then standardized into themed statements that became the nine-item “Mobile app purchase scale.” The items were measured using a five-point scale, anchored with strongly disagree (1) to strongly agree (5). The descriptive adjectives provided by focus group respondents were vetted for replication and redundancy. A master list of 21 adjectives was retained. Adjectives that described the mobile app purchase experience were scored on a five-point “very irrelevant” (1) to “very relevant” (5).

**Survey instrument**

The survey questionnaire started with a forced response item — Institutional Review Board (IRB) informed consent language. The nine-themed Mobile app purchase scale measures were interspersed throughout survey items. The adjectives used to develop the Gen Z psychological model for mobile app engagement were set in a matrix format. Descriptive survey items included preferred means for ordering pizza, preference for pick up or delivery, proficiency with Internet use, size of pizza ordered, quantity of pizzas ordered, and number of people that the order served. Age, occupation, ethnicity, income, and education completed the respondent demographic profile.

**Data collection**

An e-mail database of male Gen Z respondents was provided by the university administration. Surveys were collected using convenience and judgmental sampling techniques digitally through the online survey tool Qualtrics. After vetting for IRB acknowledgment and incomplete cases, 306 usable responses were retained.

**Inferential data testing**
Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were employed to dimensionalize the purchase experience adjectives into a psychological model. The model fit was confirmed through a split-half method (Gerbing and Anderson, 1988). One half of the randomized data set was used to perform EFA while the second half of the data set was used for CFA. Adjectives collected into factors were assigned latent variable names in the structural equation model. The nine-themed items in the Mobile app purchase scale were tested for correlations. After checking for acceptable reliability, the nine-themed items were collapsed into a grand mean variable. This dependent variable was utilized in linear regression testing, to determine which psychological factors were predictors of mobile purchase. The dependent variable was also used for analysis of variance (ANOVA) to test for differences in perception of mobile app purchase among categorical groups, such as gender and age.

Results

The respondents in this study earn US$10,000 or less (91 percent) are white Anglo (91 percent), are currently a university student (96 percent), and are 18 to 24 years old (99 percent). Ninety percent are proficient on the Internet.

Correlation testing among the nine mobile purchase statements indicate online food delivery brands providing apps, with those that save ordering info, are most highly correlated (Pearson’s $R = .363$, $p < .001$). Ease of use is highly correlated with a positive online perception (Pearson’s $R = .361$, $p < .001$). The nine-statement Mobile app purchase scale tested at the margin for acceptable reliability with a Guttman’s $\lambda_6$ (G6) of .71. Removal of individual items did not improve the results (see Table 1).

<table>
<thead>
<tr>
<th>Table 1: Mobile app purchase scale.</th>
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<tbody>
<tr>
<td>Note: Five-point Likert measure 1 = “strongly disagree” and 5 = “strongly agree”.</td>
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<tr>
<td></td>
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<tr>
<td>Visual appeal</td>
</tr>
<tr>
<td>Provide comments</td>
</tr>
<tr>
<td>Customize pizza</td>
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<tr>
<td>Saves my info</td>
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<tr>
<td>Ease of use</td>
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<tr>
<td>Order if app available</td>
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<tr>
<td>Security important</td>
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<tr>
<td>Quick and efficient</td>
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<tr>
<td>Positive perception</td>
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</table>

Exploratory factor analysis with Varimax rotation was performed with the first split half dataset of adjectives ($N = 152$). The EFA defined three clusters with Eigenvalues greater than one. Based on confounded, or close to confounded, variables a cut off of factor loadings greater than .6 was used. Fourteen items from the initial 21 items were retained. The adjective clusters were named to indicate latent themes and were identified as “Anxiety,” “Affective,” and “Functional” (Table 2). Related to $RQ2$, the factors held high internal consistency, with alphas of .91 for “Anxiety” (six adjectives); .79 for “Affective” (four adjectives); and .80 for “Functional”
Tap on our app: Internet motivators in the Generation Z purchasing process

(four adjectives).

Table 2: Internet purchase psychological model.

<table>
<thead>
<tr>
<th></th>
<th>Anxiety ($\alpha = .91$) Eigen = 4.63</th>
<th>Affective ($\alpha = .79$) Eigen = 3.78</th>
<th>Functional ($\alpha = .80$) Eigen = 3.73</th>
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</thead>
<tbody>
<tr>
<td>Frustrating</td>
<td>0.87</td>
<td></td>
<td></td>
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<tr>
<td>Undependable</td>
<td>0.84</td>
<td></td>
<td></td>
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<tr>
<td>Confusing</td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slow</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Untrustworthy</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mindless</td>
<td>0.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entertaining</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fun</td>
<td>0.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assuring</td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enjoyable</td>
<td>0.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenient</td>
<td></td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Easy</td>
<td></td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>Quick</td>
<td></td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>User friendly</td>
<td></td>
<td>0.66</td>
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The second split half dataset of adjectives ($N = 153$) was utilized to test confirmatory factor analysis based on the three-factor EFA solution. Sufficient reliability existed within the clusters while discriminant validity was evident among the clusters. Results indicated a marginal but acceptable fit $\chi^2 = 221.12$, CFI = .87, TLI = .86, root mean square error of approximation (RMSEA) = .10 ([Figure 1](#)).
Regressions were performed to determine if factors within the App purchasing psychological model were predictors of purchase. The factors “Affective” and “Functional” were unique significant predictors of purchase intention ($R^2 = .11, F (3, 302) = 12.25, p < .001$).

Differentiation of means (ANOVA) among categorical groups were tested, using the Mobile app purchase scale as the dependent variable. There were no significant differences among age, occupation, gross income, education, number of people considered in the order, or the number of pizzas ordered per month. Ethnicity showed as significant, however it is a biased variable based on lack of diversity in the sample set. What was a significant differentiation among groups was the size of pizza ordered $F (3, 302) = 10.86, p < .001$. Tukey’s post hoc analysis indicated those who ordered personal pan size pizzas are significantly different than those who order small, medium or large pizzas.
Discussion

This study examines the use of mobile application for purchasing decision through the theoretical lens of diffusion of innovation. Existing scholarship in diffusion of innovation suggests research should focus on emerging software apps defined by common functions and on the everyday functional practices afforded by new technology (Atkin, et al., 2015). The ordering and customization of a food order has become a natural process where mobile apps have increasingly played a role. Pertaining to the diffusion model, mobile applications used for pizza ordering in this study have reached the implementation and adoption stage. In RQ1, we explored perception of mobile application use related to purchasing. The Mobile app purchasing scale indicates that mobile features with the most robust values (on a five-point scale) were the ability to customize an order (4.38), the security of the mobile application (4.27) and the ease of use of the mobile application (4.20). An “attraction to purchase” is correlated with apps that “save consumer information.” Modern consumers also demand results from their invested effort in application purchase. This is indicated as observability in diffusion theory. The ability to have access to a useful app that saves info is a time saving mechanism that increases appeal for future purchases. Consumers also gravitate toward apps that sell the brand identity while providing an easy user experience. Diffusion of innovation indicates consumers are more likely to embrace a new innovation when there is compatibility with the values, experiences, and needs of the adopter. When a brand is presented as the consumer deems appropriate, values align and a speedy adaptation occurs (Rogers and Shoemaker, 1971).

From a technological standpoint, it must be acknowledged that these advantages do not naturally flow together. Maintaining security becomes increasingly difficult when personal details are acquired by the app. These same details are essential for providing ease of use and seamless customization. The fact respondents perceived mobile applications as able to provide these customizations indicates the maturity of the software, where the application could be both functional without jeopardizing security.

It could be argued acceptance of a mobile application is based on the prior assessment of the adopted technology in a smartphone. Any phone purchaser can attest it has become more difficult to acquire a phone that is not a smartphone. It is possible the overall phone has already been assessed as a secure innovation and as a result, it facilitates the adoption of individual smartphone applications. Given this study’s focus on Generation Z — a population chosen for their early adoption tendencies — it is possible that other populations may express more hesitance in the adoption of individual mobile applications on their smartphones.

RQ2 incorporated the psychological dimensions affecting mobile use in the purchase process. It proves interesting that functionality of the mobile application, coupled with the emotional (affective) experience, were significant predictors of purchase. However, the innovation that occurs in purchase might be perceived through the dominant factor “Anxiety” in consumers’ relationship with their apps. Consumers who are in the midst of an adaptation process search for relative advantage, to determine if the new innovation (the app) performs better than the product or program it replaces. An app purchase makes sense if it is an efficient buying experience superior to at retail, on the Web, or mediated through a phone call. The affective dimension reflects that mobile applications are offering what male Gen Z consumers tend to look for in a new technology, functional yet fun and entertaining (Solomon, 2014; Brailovskykaia and Bierhoff, 2020). The functionality of the application coupled with its ability to provide customizable options offers an opportunity at adventure: Jalapeno toppings? Kiwi? Avocado? A convenient, accessible tool to customize while at a stoplight or watching a movie.

The “Anxiety” motivator perhaps defines as much about the technology as it does about the population. Recent studies indicate Gen Z are reporting increased mental health issues such as anxiety, depression, and eating disorders (Wieland and Kucirka, 2020). It is interesting that the sample found mobile applications to be “confusing” and “untrustworthy” through the strongest factor in the psychological model (Eigenvalue 4.63). It may be that respondents are influenced by the potential weakness of an application, while also affirming the pleasure of its use. Anxiety may reflect part of the appeal. Gen Z individuals have proven to be performance oriented; when an app is “frustrating” or “confusing” or “slow” it may actually add to its appeal. Much like a gaming context, the reward of ordering a specially customized pizza through the app is akin to “winning”
through food delivery. When the mobile purchasing experience is viewed as a mobile game, the consumer will face some natural hiccups in their experience. The technology attracts engagement through the challenge they have managed to accomplish.

There is one additional caveat to consider, the interesting indication that size of pizza ordered is a unique differentiation related to the app purchasing experience. Although the number of people considered in the order was not a differentiator, those who ordered a personal pan pizza had a different experience than those ordering larger size pizzas. It is possible there is a performance pressure indicator built into the process. Gen Z can be sensitive to how they are perceived. With the Anxiety factor a major indicator of the experience, those ordering for only themselves may not feel the judgmental scrutiny that would accompany ordering a larger pizza for sharing. This may be a psychological ramification as the customer struggles through the trouble of learning the app. But when it’s a personal pan pizza, that struggle is controlled under the sole discretion of the user.

It is worth noting that in this study, there is a natural concern of overstating the case. A specific population was chosen in order to examine a specific innovation adoption experience. That said, the value of case study is the ability to examine a given phenomenon in a more holistic matter in order to meaningfully add to the theoretical conversation. In this case, this study adds to the discussion of diffusion of innovation by posing the possibility that “anxiety” can be a feature, as opposed to a bug in a technology. It can actually aid in the adoption process.

Future research should consider applying this concept to a more generalizable population in order to better predict the use of mobile applications as an innovation. It may also be worth examining other forms of mobile applications that have operated in a similar manner. In mobile gaming for instance, many applications are known for excessive maintenance times, slow loading speeds and instability. Many of the same features were identified in mobile pizza purchasing applications. However, this study offers a concrete and illustrative example of the adoption process of Internet-mediated software. It provides a vital research gap and raises new opportunities for negative software features that can present positively to consumers.

Limitations

This study features some limitations. The convenience data sample is racially biased and does not reflect the general population. Questions remain, regarding the mental health of respondents and its relationship to anxiety, as operationalized in the psychological model. We did not include measures on mental health, which will be necessary in a follow-up study. An emerging area of research is gamification. Our study did not test for gaming features related to app purchase as a possible predictor of behavior. Finally, our study did not fully scrutinize qualitative insights from focus groups. Future studies should consider quantifying focus group transcripts through coding within themed content, then testing inter-coder reliability.

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