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An NLP-based Mixed-method Approach to Explore the Impact of Gratifications and Emotions on the Acceptance of Amazon Go

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ABSTRACT

Amazon Go is a cashierless convenience store concept, which is seen as a disruption in the grocery retail segment. Although Amazon Go has the ability to disrupt the retail segment, there are speculations on how Amazon Go will be perceived by users. Existing studies have not utilized user-generated content to understand the factors that affect customer behaviour in case of Amazon Go. Additionally, in case of phygital retail, studies have not attempted at understanding the effect of emotions and gratifications on user behaviour. To address the gap of exploring user perspectives based on their experience, we have examined the impact of gratifications and emotions on the acceptance of phygital retail using user-generated-content. A mixed-method approach has been utilized using only user-generated content. Utilizing topic-modelling based content analysis and emotion analysis on 30 articles related to Amazon Go, we found themes like, convenience, technology, experience, personalization, enjoyment and emotions like, bad, good, annoyance, success. In the empirical analysis, we have utilized 522 reviews about Amazon Go from the cognition and emotion theory stance, and found that hedonic gratifications have a positive impact on challenge emotions. We also found a significant impact of emotions on customer's favourite behaviour.

Keywords: Amazon Go, Emotion Analysis, Gratifications, Phygital retail, User Generated Content

Ⅰ. Introduction

In the last few years, technological advancements have not only transformed the different ways of providing services (Cheng, 2019), but also have changed the customer purchase behavior in different sectors. While ICTs have increased the competition of traditional retail stores by the use of different sales medium like e-commerce, m-commerce, etc. (Ramaswamy, 2013), the retail segment is also witnessing a drastic

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change (Ramaswamy, 2013) as more interactive technologies, like, augmented reality, artificial intelligence, virtual reality, and internet-of-things (Howland, 2020) are being used to increase the footfall in retail stores (Baek et al., 2020). Wertz (2018) feels that in order to sustain, the retail environment needs to adapt to the changing trends like, having an omni-channel presence and creating an engaging experience for customers. The 'Phygital' mode of operations help companies link the 'physical' environment with 'digital' experiences (Federica and Venanzio, 2020). Big organizations, like, Amazon, Nike, etc. are also bringing the 'phygital' shopping experience (Sorensen, 2020). Becoming phygital can help companies enhance customer experience by blending emotion and functional aspects together (Batat, 2021) which will create a better bond with the customer and thus increase customer loyalty (Geoblink, 2018). Although a phygital experience can improve customer experience and delight (Jolly, 2019), retailing organizations face several challenges while trying to implement "phygital" environments like, creating better consumer identification strategy, managing inventory and personalized offers (Jolly, 2019). But the biggest challenge lies in the phygital strategy implementation part (Singh et al., 2019). In this study our aim is to understand whether gratifications and emotional aspects related to a "phygital" store can affect customer behaviour. This is based on earlier studies where researchers have observed a significant role of gratifications and emotions on customer behavior (Ray et al., 2019; Ray et al., 2021). In this study, we have focused on Amazon Go (a phygital store) to understand user behaviour.

Amazon Go, a phygital retail, opened to the public in January 2018 (Polacco and Backes, 2018), is mainly into the convenience store concept (Joshi, 2020) which is poised to be the future (Cheng, 2019). Using advanced technologies, Amazon Go's goal is to improve the customer shopping experience (Joshi, 2020). Although researchers feel that Amazon Go is sustainable (Polacco and Backes, 2018), and has benefits like, cashier-less checkout, automatic inventory, less theft, and better maintenance of available space (Book, 2018), several problems like, fluctuating labor costs, payment by cash (Book, 2018), seamless transactions in the presence of many customers (Hofbauer, 2018), and safety (Polacco and Backes, 2018) might affect customer behavior towards Amazon Go. Since Amazon Go is a fairly new concept, there are limited studies on Amazon Go. Understanding the factors or gratifications affecting customer's favourite behaviour to use Amazon Go will help researchers and practitioners to design better self-service interactive technologies. In the context of phygital retail, earlier studies have not attempted at understanding the effect of emotions and gratifications on user behaviour. Thus, the research questions that drive this research on phygital retail are:

RQ1: What is the impact of different gratifications on customer's behavior (here, favourite behavior)?

RQ2: What is the impact of emotions on customer's favourite behaviour?

To answer the research questions, Natural Language Processing (NLP) based approach is used. In this study, the uses and gratification theory (U & GT) framework is combined with the Cognitive Theory of Emotion. Qualitative and quantitative studies can be limited by sample-size and the population spread (Boddy, 2016; Delice, 2002; Deziel, 2018). Hence, we have used UGC from different sources. A mixed-method approach is used not only to capture the etic perspectives of other authors (Ray and Bala,

2021), but also to understand the drivers of customer's 'favourite behaviour'. As evident from the qualitative and quantitative studies, there is an impact of gratifications and emotions on customer's 'favourite behaviour'. The main contributions are as follow: (a) understanding the impact of gratifications and emotional aspects on 'favourite behavior' towards the use of phygital retail (here Amazon Go), and (b) utilizing UGC to capture perspectives from a wider population and examining them both qualitatively and quantitatively.

Section 2 presents the literature on phygital experience in retail stores, Amazon Go, and the theories used in this study. Section 3 builds the conceptual model followed by the research methodology in Section 4. The remaining sections discuss the results, the implications, the limitations and the scope for future research.

Ⅱ. Literature Review

This section gives an overview of the "Phygital" concept, and how utilizing phygital marketing strategies can increase sales. This section also presents the existing research work on Amazon Go, and the use of UGC in the retail segment. This section also presents the various popular techniques used for mining useful information from the UGC. Section 2.5 contains a discussion on the variables used in this study.

2.1. Phygital Experience in Retail Stores

'Phygital' is an emerging concept which is helping to form an omni-channel presence (Moravcikova and Kliestikova, 2017) and attract more customers by utilizing technological innovations to effectively link the 'physical' environment with 'digital' experiences (Federica and Venanzio, 2020). Businesses in different segments like, tourism (Neuburger et al., 2018), marketing (Moravcikova and Kliestikova, 2017), and so on have all voiced the benefits of having interactive technologies (or self-service technologies like, virtual reality, augmented reality, computer vision, and voice assistance) in increasing user experience, sales (Brenner, 2020; Paul, 2019), and the relation with customers (Mustaphi, 2020), etc. In recent years, big organizations in different business segments like, grocery retail (Amazon Go) (Sorensen, 2020), banking (Capital One) (Brenner, 2020; Sorensen, 2020), footwear (Nike, Timberland) (Sorensen, 2020), fashion (Wishibam) (Paul, 2019), etc. are working on different phygital marketing strategies (Brenner, 2020) for bringing the 'phygital' shopping experience for their customers. Despite the growing popularity of "phygital" experience, only two papers have examined factors influencing user experience on phygital retail stores. The way a user gets involved with the phygital store (by giving priority to risks or by focusing on the enjoyment and benefits) also affects users' engagements and patronage behaviour (Banik, 2021). In the context of phygital store, Banik and Gao (2023) found that hedonic benefits affect user experience and user's subsequent decisions. However, the above two studies have just focused on the survey data. In the "phygital" retail segment, a lot of hype was created regarding the opening of Amazon Go, which will enable seamless shopping experience to the customers. The reason for selecting Amazon Go for our study is explained in the next section.

2.2. Review of Articles on Amazon Go

Amazon Go is a chain of "phygital" stores which is revolutionizing the present retail store concept

(Grabham, 2021; Livemint, 2021; Tillman, 2021). Amazon Go started its operations in January 2018 (Polacco and Backes, 2018). As of 2020, Amazon Go has around 27 stores (Grabham, 2021; Livemint, 2021; Tillman, 2021). A latest variant of the Amazon Go, Amazon Go Grocery was opened in February 2020 (Grabham, 2021; Livemint, 2021; Tillman, 2021). According to Forbes, the Amazon Go convenience store is the latest trend in the phygital era (Joshi, 2020). Because of its appeal, it is well poised for seeing a sizable growth in the upcoming years (Cheng, 2019). Using emerging technologies like Internet of Things (IoT), sensors, computer vision, augmented reality (AR) and virtual reality (VR), Amazon Go has helped to improve the shopping experience of customers by eliminating the time taken during checkout (Joshi, 2020). <Table 1> summarizes the existing research work on Amazon Go. We have examined articles on Amazon Go by using the keywords {allintitle: "amazon go"} in Google Scholar. Polacco and Backes (2018) have assessed the benefits, issues and sustainability of Amazon Go based on the viewpoints of Amazon

<Table 1> Review of literature on Amazon Go

Authors	Methods used	Main Focus	Main Findings
Polacco and Backes (2018)	Review paper, Qualitative interviews	Benefits, issues and sustainability of Amazon Go.	While the respondents felt that Amazon Go is sustainable and has lot of benefits, they felt that it will have an impact on safety and workforce.
Wankhede et al. (2018)	Opinion based	Challenges that Amazon Go can face.	This study assesses the technology behind Amazon Go and evaluates different challenges that can arise like, identifying customers wearing masks, identifying customers and items in case of a large number of customers, customer without smart phone.
Türegün (2019)	Opinion based, case based.	Benefits and challenges of using technology for financial reporting.	The authors have used Amazon Go case study to explain how efficiently the billing and financial statements are generated for each transaction.
Ives et al. (2019)	Case-based	Disruption in retail domain	The authors have discussed how Amazon's investment in technology has helped them in setting up Amazon Go which is a huge disruption in the grocery retail market.
Elnahla (2019)	Review paper	Surveillance in retailing	The authors have made an in-depth study on the evolution of surveillance over the years with the focus in the retail segment.
Hoang (2019)	Quantitative Study (Path Analysis)	Exploring the effect of factors on adoption of Amazon Go.	While perceived benefits and perceived sacrifices have a notable influence on perceived values, perceived benefits and trust have an impact on intention.
Hattula et al. (2020)	Quantitative Study (regression analysis)	Effect of cultural dimension on intention.	German participants are unsure of Amazon Go and the authors feel that Amazon might not be successful in the German market because of their cultural unawareness.
Junsawang et al. (2020)	Quantitative study (Path analysis)	Willingness to use self-service technologies (SST)	The authors have noted that factors affect willingness to accept SSTs.
Martin et al. (2019)	Opinion based	Analysis of cashierless retail	Although the present seamless shopping experience of Amazon Go has satisfied customers, there can still be questions about the integrity of the cashierless system.

Go staffs. The respondents in this study felt that Amazon Go is sustainable and has a lot of benefits. Other researchers have also praised the technology used in Amazon Go stores, like, "efficient use of technology for reporting transaction details" (Türegün, 2019), and "effective surveillance" (Elnahla, 2019). Ives et al. (2019) felt that in the grocery retail segment Amazon Go has caused a disruption. However, authors have also stated that Amazon Go can face challenges like, individual safety, ethical considerations while reducing workforce (Polacco and Backes, 2018), identifying customers and items effectively, seamless transactions for customer without smart phone (Wankhede et al., 2018), integrity of cashierless system (Martin et al., 2019), and the impact of cultural unawareness on adoption (Hattula et al., 2020). Few researchers have performed quantitative studies to understand factors affecting customer behaviour. Hattula et al. (2020) have explored variables like usefulness, ease of use, low/high context, attitude, intention, actual system use, long/short term orientation, uncertainty avoidance, and monochromic/polychromic time to understand how the cultural dimension affects the intent to accept. Junsawang et al. (2020) in their study about the desire to adopt self-service technologies in the Thailand market have evaluated the variables like, customer satisfaction, service quality, technological innovativeness, technology anxiety, usefulness, ease of use, and attitude. Elnahla (2019) also explored the impact of perceived benefits, perceived sacrifices, perceived security, perceived value, and trust on attitude and usage of Amazon Go. Thus, there are limited studies on understanding the craze behind Amazon Go and what factors create the craze. Additionally, none of the studies have tried to understand customer perspectives from the online reviews. In the next sub-section, we look at studies that have utilized online reviews in the retail segment.

2.3. Studies on Online Reviews in the Retail Segment

Although no prior study has utilized UGC or online reviews in understanding customer behaviour in case of Amazon Go, there are limited studies on understanding how the UGC can help in the retail segment (refer <Table 2>). We have used the following keywords in Google Scholar and Scopus: {Allintitle: "user generated" "retail"}, {Allintitle: "online" "review" "retail"}, and {Allintitle: "online" "reviews" "retail"}. Yun et al. (2008) found that the way people perceive technology and also online reviews vary from country to country because of power distance and cultural differences. Kim and Shin (2015) examined the interaction effect of reviews and sales incentives using variables like, average ratings, price discounts, shipping offers, number of reviews and sales. The authors found a significant impact of incentives and reviews on product sales. Floyd et al. (2014) utilized a meta-analytic analysis of 26 empirical studies to examine variables, like, review valence, critics/third-party reviews, and product involvement. The authors found that online reviews affect sales elasticity. Fiarni et al. (2016) found that their proposed system (utilizing sentiment analysis and hierarchical Naïve Bayes) obtained around 89% accurate classifications of online reviews. Song et al. (2019) utilized a game-theoretic framework to understand the effect of reviews on third-party selling based on the product quality and fit. The authors found that in case of symmetric reviews, high credible reviews intensify the competitive scenario between third-party sellers and retailers. But, in case of asymmetric reviews, it is difficult to convince the third-party seller to sell on the retailer website because of platform effect. Littlechild (2020) in their com-

<Table 2> Studies on User-generated Content in the Retail Segment

Authors	Sample Size	Analysis Techniques Used	Major Findings	Limitations discussed
Yun et al. (2008)	Consumer reviews from 200 leading online retail websites	Content analysis	Users from higher power distance countries adopt technology faster.	1. Internet poses a problem during cross-cultural comparisons. 2. Challenge of studying two different countries having different market sizes.
Kim and Shin (2015)	Reviews of 227 products	Regression Analysis	Customer reviews and incentives influence product sales.	1. Uses cross-section data. 2. Uses sales rank. 3. Interaction effects are not explored. 4. Data used is focused only on one product segment.
Floyd et al. (2014)	26 empirical studies	Meta-analytic approach	Information from credible sources has higher persuasive influence and online reviews have a significant influence on sales elasticity.	1. Limited available data (few relations between online reviews and sales elasticity are not incorporated) 2. Study constrained by the variables examined.
Fiarni et al. (2016)	1442 online reviews	Text mining, Naïve Bayes Classification	The proposed model using Naïve Bayes and sentiment analysis provides 89% accurate results.	1. Study conducted only for Indonesian online retail segment (clothing product)
Song et al. (2019)	-	Game-theoretic model	The platform effect and symmetry of reviews affects how third party can be influenced to sell on retail platform.	-
Littlechild (2020)	104-47608 reviews in different sectors	Descriptive and regression analysis	Organizations in UK advising consumers on energy retail use reviews present in Trustpilot.	-
Seiler et al. (2020)	1074 responses	Empirical Analysis (regression)	In case of millennial the user-generated content impacts customer loyalty.	1. Common-method biasness can be present.

parative study found that supermarkets and energy retailers are using Trustpilot, the customer review website to advice customers more. Seiler et al. (2020) found that UGC affects loyalty which increases if user's feel that the content is trust-worthy. However, researchers have ignored the qualitative aspects of online reviews (Gensler et al., 2016; Ray et al., 2021) in the retail segment. The qualitative aspect of online reviews or in other words the non-numerical textual part of the user reviews contains deeper insights about customer experiences (Ray et al., 2021) and affects prospective customers (Li et al., 2019; Chae and Kim, 2021) as well as service-providers (Gensler et al., 2016). Similarly, in the context of phygital retail, reviews posted by customers will affect the decision making of other potential customers since customers generally tend to read the reviews rather than just looking at the numerical rating of the product/service. Additionally, the reviews will also help serv-ice-providers to understand the gaps that exist and

take necessary steps.

2.4. Mining Meaning from Online Reviews

The penetration of Internet has helped users to express their views about different products or services in various online platforms, like, Facebook, Twitter, etc. (Dindar and Dulkadir, 2018; Ray et al., 2021). These reviews (online reviews) refer to the evaluation of a product/service that a user shares based on his/her experience in different online platforms (Cheng and Ho, 2015). Online reviews are helpful in reducing the uncertainty in the minds of potential buyers (Ismagilova et al., 2020). Although online reviews can be utilized in several ways to understand customer perspectives, there are areas where are understudied. Cheng and Ho (2015) noted that only a handful of studies have tried to explore the content quality of reviews. Researchers (Ray et al., 2021; Zablocki et al., 2018) have expressed concerns regarding the lack of research on online reviews to explicitly extract meaning from the qualitative aspects of textual content. Researchers (Ray et al., 2020; Ray and Bala, 2021) have also noted a lack of studies on using online reviews in structural or path models. While textual analysis can be performed in various ways like, finding word-frequency, finding words that co-occur (collocation), finding words or phrases that are relevant to the content (concordance) (Aldanani, 2019; Chae and Kim, 2021; Li et al., 2019), classification of text using sentiment analysis, emotion analysis, parts-of-speech tags (Ray et al., 2021; Sivakumar and Uyyala, 2022), text categorization (Sebastiani, 2005), thematic analysis (Ray and Bala, 2021), and so on to name a few. While the sentiment and emotional analysis can help to examine the feelings of customers (as evident from the words that the customers use in their reviews), topic modeling generates a topics-terms matrix which helps to understand the patterns present in the text. The NLP-SEM based technique utilizes dataset generated from textual content to analyze structural models. Although there are different ways to analyze textual data for understanding the factors or barriers affecting customer behaviour, the NLP-SEM based technique is useful when the researchers want to perform an SEM-based analysis but is limited by sample size and the spread of sample population (Ray and Bala, 2021; Ray et al., 2021). This study intends to utilize data from customers who have visited Amazon Go stores. However, since there are limited stores of Amazon Go, it is really difficult to capture the perspectives of Amazon Go customers. Online customer reviews provide an unbiased perspective of customers regarding their experience with the product or service (Ray et al., 2021). Hence, the NLP-SEM based technique is used in this study to understand the drivers that affect customers' favourite behaviour. For performing textual analysis and mining important information from the textual data, we have performed sentiment analysis, emotional analysis, topic-modeling, and NLP-SEM based study (refer Section 4).

2.5. Exploring the Variables Used in This Study

We have used the U & GT framework from the cognitive theory of emotion stance. The U & GT is generally used to understand why and how users use certain medium to satisfy their needs (Katz et al., 1973; Severin and Tankard, 1997) and have been used in different contexts, like, online food delivery (Ray et al., 2019), social-media behaviour (Islam et al., 2020), etc. Although the widely used framework for examining intention to accept innovation is the technology acceptance model (TAM) (Davis, 1989),

researchers (Dolan et al., 2016; Luo et al., 2011; Luo, 2020) feel that the U & GT framework performs better while evaluating the acceptance of interactive technologies (Chang et al., 2021) because it extends the needs and motivation theory (Katz et al., 1973). U & GT captures user satisfaction (Severin and Tankard, 1997), explains different benefits that users derive from the use of a specific media and explores the reasons behind users continued use (Ruggiero, 2000). Although researchers have generally categorized the gratifications into social, process, content and technology (Ray et al., 2019; Sundar and Limperos, 2013), they can be combined under the broader categories hedonic, utilitarian and social gratifications (Gogan et al., 2018). While hedonic gratification refers to perceived gratifications which deal with fun and enjoyment (Cheng and Jiang, 2020) a user gains from a particular experience, utilitarian gratification deals with the extrinsic values of technology like, usefulness, ease-of-use, and complexity (Venkatesh et al., 2003). Social gratifications deal with the gratifications people obtain from social interactions and social networking (Gogan et al., 2018). In this study, we have mainly focused on the utilitarian and hedonic gratifications and have not captured the interactions among users.

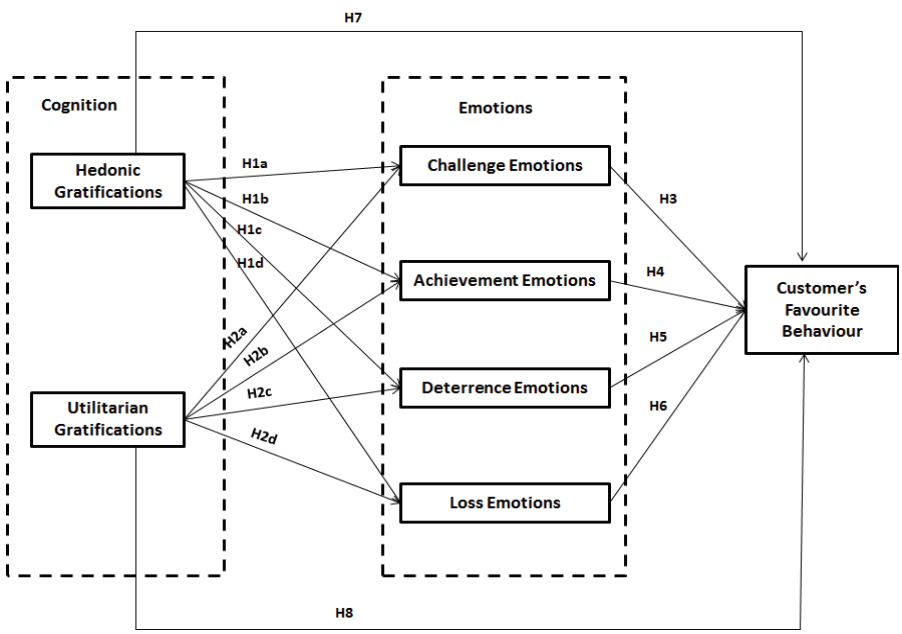
We have also utilized the cognitive theory of emotion model (Fiore and Kim, 2007) based on Lazarus (1991)'s cognitive theory of emotions. Chebat and Michon, (2003) found that emotions act a mediator between cognition and behaviour. Human emotions can be of different types like, anger, fear, anticipation, sadness, trust (Chatterjee, 2020; Ray et al., 2021), elated, quiescent, calm, serene, gloomy, dejected, restless, tense, agitated (Lee et al., 2018), relaxation, pride, excitement (Pham and Sun, 2019), hope, and worry (Ovčjak et al., 2016). Although different studies have classified emotions in different ways like, high arousal and low arousal emotions (Cavanaugh et al., 2015; Chatterjee, 2020; Ray et al., 2021), negative and positive emotions (Pham and Sun, 2019), etc. we have used the emotion categories (achievement, challenge, loss, and deterrence) (Beaudry and Pinsonneault, 2010) which was used by Ovčjak et al. (2016). This emotion category is used because such categorization can help to understand human behaviour in-terms of perceived appraisal opportunity, threat, perceived control over expected consequences or perceived lack-of-control over expected consequences (Ovčjak et al., 2016). In the "phygital" retail content, based on our search in Scopus, we have not found studies where the impact of emotions has been captured. However, Mele et al. (2021) have found different emotions in the different phases of consumer's journal, like, while establishing a connection consumers' generally portray excitement, confusion, frustration or urgency, while exploring consumers' generally portray disappointment, stress, or high/low emotions, and while using customers can express emotions like happiness, anger, surprise, etc. In the case of "phygital" stores, like Amazon Go, when customers get the seamless shopping experience, they generally portray emotions like, surprise, excitement, fear, etc. However, while using the automated shopping process, if customers face issues related to payment, customers will generally portray high negative emotions, like, anger, stress, confusion, frustration, loss, etc. In the customers' journey with the company (Mele et al., 2021), customer's satisfaction and their decision making can be influenced by different emotions (Hyun et al., 2022), it is important to explore the role of emotions in the phygital store segment as well. Additionally, in this study we have explored customer behavior from their favouritism stance, which we termed as "favourite behavior". In this we would like to capture customers "love", "like" and "intention to recommend". Although researchers have mostly used these

terms to relate to intention (Ray et al., 2021) or brand attitude (Ray et al., 2021), in this context we have used them to capture customer's "favourite behaviour".

Ⅲ. Conceptual Model and Hypotheses Formulation

In this study, we have used cognitive theory of emotion model (Fiore and Kim, 2007) (refer <Figure 1>). The main variables used in the cognitive theory of emotion model include shopping environment cues, cognition, emotions and "favourite behaviour". The emotions act as a mediator between cognition and "favourite behaviour". We have used the gratifications, namely, hedonic, and utilitarian (Gogan et al., 2018) under cognition. We have not used social-gratifications because we are using customer reviews. Cognition can be linked to perceived benefits (Fiore and Kim, 2007), gratification, learning, gaining knowledge, etc. (Nambisan and Baron, 2007). Earlier researchers have also noted how gratifications can be linked to individual cognitive behaviour (Calder et al., 2009; Chen et al., 2002) and can be used to examine customer behaviour (Ray et al., 2019). In this research, we explore the impact of gratifications on the emotions (challenge, achievement, deterrence and loss) which in turn impact customer's "favourite behaviour".

Hedonic gratification deals with those perceived gratifications which deal with the fun and enjoyment aspects that a user gains from a particular experience (Cheng and Jiang, 2020). In case of phygital retail, hedonic gratifications can be derived from the use of interactive technologies (Cheng, 2019) that help



<Figure 1> Proposed Model (Adapted from Sources: Fiore and Kim, 2007; Gogan et al., 2018; Ovčjak et al., 2016)

in providing personalization, ease-of-use, and faster checkouts (Book, 2018; Cheng, 2019; Joshi, 2020). When a service is providing good enjoyable services, customers will have challenge emotions (like, hope, anticipation, arousal) or achievement emotions (like, happiness, satisfaction, pleasure) (Ovčjak et al., 2016).

However, when users are not satisfied with a particular service, they will not enjoy the service (Tombs et al., 2014). Users who are not satisfied will exhibit loss (like, anger, annoyance) or deterrence emotions (like, anxiety, fear, worry) (Ovčjak et al., 2016). Users having deterrence or loss emotions will tend to discontinue the service. Thus, when users feel that they are able to gain a lot of perceived enjoyment (hedonic-gratifications) from a service, their challenge and achievement emotions will increase, and they will develop a liking for the service (Gan, 2017; Kim et al., 2018). Thus, their favourite behaviour will also be increased. However, when the perceived hedonic gratifications are less, the user may discontinue the service because he/she will exhibit more deterrence and loss emotions. Thus we propose the following hypotheses:

H1: Perceived hedonic gratifications affect emotions.
H1a: Perceived hedonic gratifications positively affect challenge emotions.
H1b: Perceived hedonic gratifications positively affect achievement emotions.
H1c: Perceived hedonic gratifications negatively affect deterrence emotions.
H1d: Perceived hedonic gratifications negatively affect loss emotions.

Utilitarian gratification deals with the extrinsic values of technology like, usefulness, ease-of-use, and complexity (Venkatesh et al., 2003). Researchers have found that utilitarian gratifications can be related to achievement (Li et al., 2015; Mouakket, 2018), motivation (Park et al., 2014), and also acceptance of technology (Luo et al., 2011). This means that when users feel that the ease of use (Joshi, 2020), enhanced experience (Cheng, 2019), and usefulness (Book, 2018) of the phygital retail is better, they will want to accept the innovation. Scholars have found that ease-of-use and usefulness can be linked with happiness and enjoyment (Pitafi et al., 2020). Higher extrinsic aspects (utilitarian gratifications) imply better exhibit of challenge and achievement emotions (Mouakket, 2018), and a liking for the service (Gan, 2017). When users do not get more information, or the ease-of-use or perceived usefulness is less, users will not enjoy the service (Tombs et al., 2014) and users will exhibit emotions like, like, anger, annoyance, anxiety, fear, and worry which can be linked to deterrence and loss emotions (Ovčjak et al., 2016). Lesser the perceived utilitarian gratifications, lesser will be the achievement and challenge emotions and the user will exhibit more deterrence and loss emotions. Hence, we hypothesize:

H2: Perceived utilitarian gratifications affect emotions.
H2a: Perceived utilitarian gratifications positively affect challenge emotions.
H2b: Perceived utilitarian gratifications positively affect achievement emotions.
H2c: Perceived utilitarian gratifications negatively affect deterrence emotions.
H2d: Perceived utilitarian gratifications negatively affect loss emotions.

Challenge emotions help to have greater perceived control over expected outcomes and also have greater appraisal emotions (Ovčjak et al., 2016). The main challenge emotions are excitement, hope, antici-

pation, arousal, playfulness and flow (Beaudry and Pinsonneault, 2010; Ovčjak et al., 2016). Interactive systems will help users with faster checkouts (Book, 2018) and better services will make users continue using the services. In case of self-service interactive systems, when customers are satisfied and excited they will continue using the services. Thus, we hypothesize:

H3: Challenge emotions have a notable positive effect on customer's "favourite behaviour" towards Amazon Go.

People having achievement emotions like, happiness, satisfaction, pleasure, relief and enjoyment, generally portray perceived lack-of-control over expected outcomes (Beaudry and Pinsonneault, 2010; Ovčjak et al., 2016). Ovčjak et al. (2016) have found that achievement emotions (enjoyment and satisfaction) affect behaviour. Researchers have found that achievement emotions, like, arousal emotions affects brand attitude (Ray et al., 2021), review helpfulness (Chatterjee, 2020), etc., which in-turn affects customer behaviour. In case of self-service interactive technologies achievement emotions will also affect user's decisions. Hence, we propose:

H4: Achievement emotions have a significant positive influence on customer's "favourite behaviour" towards Amazon Go.

People showing deterrence emotions like, anxiety, fear, worry and distress exhibit perceived control over expected outcomes but they can pose to be a threat to appraisal opportunities (Beaudry and Pinsonneault, 2010; Ovčjak et al., 2016). Researchers have found that deterrence emotions have a negative effect on customer behaviour, like, fear on intention (Cheng et al., 2020), anxiety on performance (Mak, 2011), etc. Distress, fear, worry or anxiety is most likely to cause avoidance or dissatisfaction among customers (Günaydin and Yıldız, 2021). A customer showing deterrence emotions is likely to discontinue using a particular product or service. Thus, in case of phygital retail, we also feel that:

H5: Deterrence emotions will have a significant less impact on customer's "favourite behaviour" towards Amazon Go as compared to positive emotions.

Loss emotions mainly consist of emotions like anger, dissatisfaction, annoyance, frustration, and disgust (Beaudry and Pinsonneault, 2010). People exhibiting loss emotions have a perceived lack-of-control over expected outcomes and also pose to be a threat to appraisal opportunities (Beaudry and Pinsonneault, 2010; Ovčjak et al., 2016). Researchers have noted a negative impact of loss emotions on users' behaviour, like, anger influences avoidance (Günaydin and Yıldız, 2021), dissatisfaction affects performance (Cote, 2019), disgust affects morality (Whitton et al., 2014), etc. In case of phygital retail, we feel that loss emotions will have a strong negative effect on users and they may avoid using the service. Thus we hypothesize:

H6: Loss emotions will have a significant less impact on customer's "favourite behaviour" towards Amazon Go as compared to positive emotions.

Researchers have also observed that hedonic and utilitarian gratifications can affect customer behaviour (Gan and Li, 2018) and technology use (Wakefield et al., 2011). Whether customers want to use the technology for enjoyment (Gan and Li, 2018) or for utility

purposes (Wakefield et al., 2011), it has been observed that gratifications affect customer attitude (Bawack et al., 2023). However, researchers have also observed that in certain contexts customers might prefer utility benefits more than enjoyment (Wongkitrungrueng and Suprawan, 2023). Since phygital retail is a new concept, users might use it for enjoyment (Sorensen, 2020). However, phygital retail concept is majorly used for functional and utility benefits (Batat, 2021; Jolly, 2019). Thus we hypothesize:

H7: Perceived hedonic gratifications affect customer's favourrite behaviour.

H8: Perceived utilitarian gratifications affect customer's favourrite behaviour.

In several contexts, it has been observed that emotions act as a mediator (Ma et al., 2022; Poels and Dewitte, 2019), etc. Researchers have also noticed that emotions mediate the relation between cognition and behaviour in contexts like sustainable marketing (Khandai et al., 2022), and cultural heritage tourism (Yao et al., 2020). It will be interesting to check the mediation effects of emotions from cognition factors on customer's favourite behaviour in the context of phygital retail. Thus we propose:

H9: Emotions mediate the relationship between the cognition factors and customer's favourite behaviour.

Ⅳ. Research Methodology

A mixed-method approach is undertaken using NLP-based content analysis and NLP-based structural-equation-modeling (NLP-SEM) techniques (Ray and Bala, 2021) (refer <Figure 2>). Such mixed-method approach helps to understand how the constructs selected for the model gets aligned to the etic and emic perspectives of consumers and helps to strengthen the conceptual model.

4.1. Data Collection

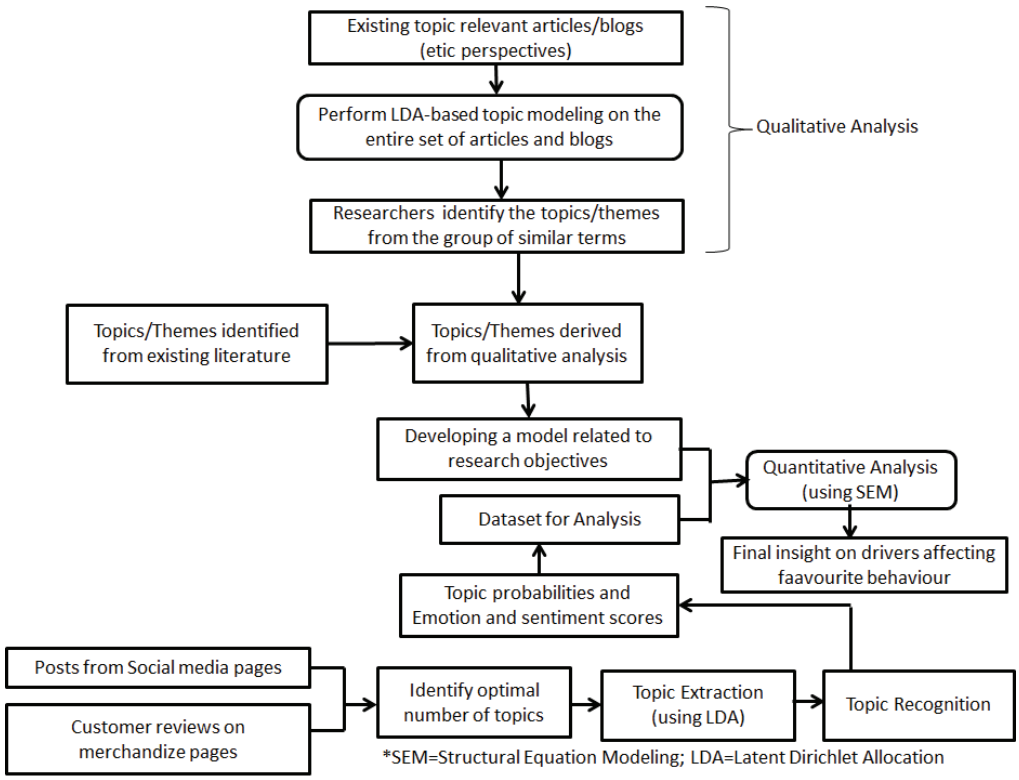
This study is divided into two parts: qualitative content analysis on relevant articles and text-mining based empirical studies. For the qualitative studies, in-order to understand the perspectives of different editors/reviewers, content analysis was performed on 30 articles/reports related to Amazon Go (Google search keywords: "Amazon Go"). These topics help to gain the etic perspectives of the authors who have done some research on Amazon Go. For performing the quantitative analysis, we have used 522 online reviews about Amazon Go available in different platforms like, Amazon, Yelp, Facebook and Twitter till 26 March 2021. Since Amazon Go is a new concept and has limited stores, we could extract only 522 reviews. Collection of reviews and analyzing them helps us to gain the perspectives of customers about Amazon Go.

4.2. Data Analysis

4.2.1. Qualitative Analysis of Articles/ Reports

The unit of analysis of the qualitative content analysis is each article or report extracted from journal websites, and report/blog pages. The steps involved for the qualitative analysis of articles or reports are as follows:

Step1: The content in the articles and reports were extracted from their respective websites



<Figure 2> Research Methodology

manually.

Step2: The extracted data is then cleansed using an algorithm to remove unwanted symbols like, "@", "#", etc. Since stop-words, like, "and", "the", etc. do not portray much meaning, they are also removed.

Step3: Each article or report content is treated as a separate document. Utilizing these documents, a code is run utilizing "ldatuning" in R to identify the optimal number of possible topics from the number of available documents.

Step4: Based on the optimal number of topics, topic modeling is performed utilizing Latent Dirichlet Allocation (LDA). This generates the mentioned number of topics and relevant words for those topics (topic-term matrix). Researchers have used topic modeling for qualitative analysis in different contexts and in different ways (Nikolenko et al., 2017), like, qualitative policy research (Isoaho et al., 2021), understanding important themes in Shakespeare's plays (Kolla et al., 2019b), etc. The topic modeling technique produces a document-topic matrix containing probability scores for each topic based on the chances of the topic appearing in the document.

Step5: In the topic recognition phase, from the topic-term matrix, the researchers discuss among themselves to identify which all topics can be decided as a theme. The final

themes were selected based on the constructs present in the conceptual model.

In the qualitative study, we have used topic-modeling based content analysis to capture important themes from the comments posted by users in Facebook or blogs or digital news channels related to Amazon Go. The argument for performing content analysis to extract important themes is in its ability to provide new insights from the data (Krippendorff, 2012). Researchers have used text-mining based techniques to extract important themes (Blei, 2012; Aggarwal and Zhai, 2012) from large amount of textual data (Kassarjian, 1977). Topic-modeling using Latent-Dirichlet-Allocation (LDA) technique is used because it helps to capture important themes without potentially biased perspectives (Ray and Bala, 2021). Topic-modeling based content analysis have been used in different contexts (Bakharia et al., 2016) like, massive online open courses (Nanda et al., 2021), policy research (Isoaho et al., 2021), to gain a deeper insight into customer perspectives from online content. We have performed deductive coding to align with the model developed from earlier research studies (Fereday and Muir-Cochrane, 2006). This method helps to strengthen the conceptual model under study. The general steps involved for extracting the important themes are extracting the content of the articles/reports in files for processing, data cleaning, and then performing topic-modeling to extract the topics and terms involved, discussing with other researchers to figure out the focused codes and the axial codes (Kolla et al., 2019a; Kolla et al., 2019b). In this study, we have used interpretation based human judgment (Giri, 2021) for extracting the themes from the topics emerging from topic-modeling technique (Kolla et al., 2019a; Kolla et al., 2019b).

4.2.2. Text Mining Based Empirical Study

The unit of analysis for the review based quantitative analysis is each review on Amazon Go posted on social-media platforms and merchandise webpages. The text mining based empirical study is divided into two main phases, identifying themes and relevant probability scores related to the model constructs and using the dataset to perform a structural equation modeling (SEM) based analysis. In the first phase, in order to identify the topics/themes related to the different constructs present in the conceptual model and their probability of appearing in each review, we have performed topic modeling on the extracted reviews. Additionally, we have also performed emotional analysis on the different articles and based on the words related to the different emotions anger, fear, disgust, sadness, anticipation, trust, surprise and joy, the words were grouped into four main emotion categories (achievement, challenge, deterrence and loss)(Ovčjak et al., 2016) and a word-cloud is formed. For performing the qualitative analysis we have used R-Studio, and the R-libraries “sentimentr”, “syuzhet”, “topicmodels”, and “wordcloud”. In the second phase of this research, a quantitative-based approach is used to empirically test the proposed model. We have used the Natural-Language-Processing based Structural-Equation-Modeling (NLP-SEM) technique (Ray and Bala, 2021; Ray et al., 2020) to figure-out the important factors that influence the use of Amazon Go. The major steps involved in the text mining based empirical study are summarized are as follows:

Step1: Extracting the reviews from different relevant platforms using web mining tools like ParseHub.

Step2: Once the data is extracted, cleansing is important to remove unwanted symbols like,

"@", "#", etc. Since stop-words, like, "and", "the", etc. do not portray much meaning, they are also removed.

Step3: Each and every review is treated as a unique response. Utilizing these reviews, "ldatuning" is performed in R to identify the optimal number of topics from the entire set of reviews.

Step4: Based on the optimal number of topics, topic modeling is performed utilizing LDA based topic-modeling. This generates a number of similar terms grouped together under different topic numbers. The topic modeling technique returns a topic-term matrix and a probability score for each topic based on the chances of the topic appearing in the review.

Step5: In the topic recognition phase, the relevant topics/themes were identified by the researchers based on mutual agreement among them with respect to the constructs present in the conceptual model. After the topics are selected, the probability scores for each topic appearing in each review are selected to prepare the dataset.

Step6. Emotional analysis was performed on each review which returned eight emotions namely, anger, fear, disgust, sadness, anticipation, trust, surprise and joy. The emotions and few topics from the topics-terms matrix (LDA output) which capture emotions have been used to form the four main emotion categories (achievement, challenge, deterrence and loss) used in this study. These emotion based scores are also used in the dataset.

Step7: For preparing the dataset for SEM-based analysis, the scores present in the dataset were adjusted to portray a Likert scale value.

Step8: Based on the dataset, PLS-SEM is performed using SMART PLS4.0 (Ringle et al., 2022).

For the empirical analysis, we have used R-packages "tm", "topicmodels", and "ldatuning".

Ⅴ. Findings

5.1. Qualitative Analysis

The NLP-based content analysis on 30 articles related to Amazon Go revealed important themes like, "convenience", "cashierless", "technology", "enjoyment", and "experience". In most of the articles, writers feel that the "cashier-less store concept popularized by the Amazon Go store" has forced many "convenience-store chains" to "invest in technology". The technology used at Amazon Go has made it possible for shoppers to pick any item and bill it on the go without waiting "for somebody to scan them out" which has eliminated the "time-consuming friction" (Douglas and Butler, 2019; Kilcourse, 2018) which adds to the gratifications that users can derive, like, shoppers can spend less time shopping and do not need to wait in queues to make the payment. Additionally, such technology will also be beneficial for store managers because it will help them to save money from operational expenses. This new technology will also provide better "interaction" and "experiences" which users will enjoy in the long run (Tillman, 2021; Trapica, 2020). Since, Amazon Go is a fairly new concept, much experimentation has not been done and hence whatever limited blogs are present are based on the experience of the writers or the anticipations they have related to Amazon Go. These themes ("convenience", "cashierless",

"technology", "enjoyment", and "experience") can be linked to the different gratifications.

We have also performed a word-cloud analysis based on the emotional scores from the emotional analysis (refer <Figure 3>) to understand some of the important words that emerge from the different articles portraying different emotions. Emotional scores were calculated for each review and then the reviews were grouped together based on the dominant emotion that was portrayed. For example, if we found that review 1, review 5, and review 7 portrayed more achievement emotions as compared to other emotions, these three reviews were combined and then a word-cloud was formed to capture the most frequent words. The results of the word-cloud based analysis on the different relevant emotions show that while in case of positive emotions (achievement and challenge) we get words like, "shopping", "fulfillment", "deal", "intelligence", "good", "excited", "special" and "success", and in case of negative emotions (loss and deterrence) we note words like, "change", "lose", "pain", "problem", "loss", "limited", "concerned", "bad", "annoyance", "lie", "theft", and "difficulty". There are some interesting observations as well. Under achievement emotions we find the presence of words like "store" and "shopping" which shows that customers feel happy and satisfied when they are able to shop from Amazon Go. In case of challenge emotions, we find words like "food", "labor", etc. which portrays that customers have great-

(a) Words related to Achievement Emotions

(b) Words related to Challenge Emotions

(c) Words related to Deterrence Emotions

(d) Words related to Loss Emotions

<Figure 3> Word-Clouds Portraying Important Words Expressed with Respect to Different Emotions.

er control when they shop food from Amazon Go and the labor involved is less. However, when customers are not able to "grab" some conditional benefits, or in "cases" where customers face multiple payment issues, their negative emotions (deterrence and loss) will get triggered. The results of the word-cloud based emotion analysis thus portray the different feelings expressed by the authors related to Amazon Go based on their experience/anticipation. Among the words emerging from the word-cloud, related words/themes have been linked to the different constructs in this study.

5.2. Quantitative Analysis

5.2.1. Measurement Model

The loadings on the factors were satisfactory (values > 0.5) (refer <Table 4>). The model also demonstrated satisfactory reliability and validity measures (AVE > .5, CR > 0.5, and the values in the diagonals are greater than the off-diagonal elements)(refer <Table 3> and <Table 4>) (Fornell and Larcker, 1981; Hair et al., 2010; Hair et al., 2013). However, the AVE score of hedonic gratification and the discriminant validity of favourite behaviour are slightly not conforming to standard benchmarks. This is because of generating the dataset from UGC (Ray et al., 2021). However, since these two variables form an important part of the study, we have not dropped the variables (Park et al., 2019).

5.2.2. Structural Model

Henseler et al. (2016) recommended to apply the standardized root mean square residual (SRMR) as the only approximate model fit criterion. The SRMR score of our model is coming as 0.112 which shows a satisfactory fit (scores < 0.08 as considered good). The R^2 values for the different emotions are: challenge (0.014), achievement (0.013), deterrence (0.009), and loss (0.007). Although the values of R^2 are small, they provide some meaningful insights (Kanthawongs, 2022). In our study, since we are dealing with emotions, even a slight portrayal of emotions in a certain scenario is important (Bisri et al., 2020). The R^2 value for the main independent variable "favourite behaviour" is 0.932.

The hypotheses results are summarized in <Table 5> and <Figure 4>. Results show that hedonic gratifications have a significant positive impact on challenge emotions (β = 0.100, p < 0.1). However, we find a non-significant impact of hedonic gratifications on achievement (β = 0.101), deterrence (β = 0.092) and loss (β = 0.038) emotions. We also find that utilitarian gratification has no significant influence on challenge (β = -0.082), achievement (β = -0.079), deterrence (-0.049) and loss (β=-0.083) emotions. Emotions have a significant influence on "favourite behaviour". We note a significant influence of challenge (β = 0.443, p < 0.001), achievement (β = 0.551, p < 0.001), deterrence (β = 0.148, p < 0.001) and loss (β = 0.127, p < 0.001) emotions on customer's "favourite behaviour". We also note that deterrence and loss emotions reduce user's favourite behaviour (evident from the β-values). Thus hypotheses H1a, H3, H4, H5 and H6 are statistically significant. However, H5 and H6 fail to capture the negative impact of loss and deterrence emotions on customer's "favourite behaviour". We note that there is an insignificant negative impact of hedonic (β = -0.013) and utilitarian (β = -0.001) gratifications on customer's favourite behavior. Thus, H7 and H8 are not supported in this study.

Mediation analysis was performed to assess the mediating role of emotions in the relation between

<Table 3> Measurement Items - Factor Loading (FL), Variance Inflation Factor (VIF), Composite Reliability (CR), Average Variance Extracted (AVE).

Constructs (References)	Measurement Items	FL	VIF	CR	AVE
Hedonic Gratification (Cheng and Jiang, 2020; Ray et al., 2021)	HG1: I feel that I get a lot of pleasure while exploring the phygital store services.	0.561	1.011	0.662	0.401
	HG2: I feel that interacting with the phygital retail store is amazing.	0.770	1.045		
	HG3: I feel that interacting with the phygital retail store is really impressive.	0.545	1.049		
Utilitarian Gratification (Cheng and Jiang, 2020; Ray et al., 2021)	UG1: I feel that the interacting with the phygital retail stores is easy.	0.807	1.013	0.714	0.557
	UG2: I feel that the phygital retail stores have a great technology.	0.680	1.013		
Challenge Emotions (Ovčjak et al., 2016)	CE1: I feel that using phygital store services gives me a lot of joy.	0.814	1.218	0.831	0.710
	CE2: I feel that using phygital store services gives me a lot of surprise beyond my expectations.	0.871	1.218		
Achievement Emotions (Ovčjak et al., 2016)	AE1: I feel that using phygital store services increases my ability to anticipate better.	0.898	1.300	0.848	0.737
	AE2: I feel that using phygital store services increases my ability to trust the services.	0.818	1.300		
Loss Emotions (Ovčjak et al., 2016)	LE1: When the phygital store services fail to perform properly, it makes me angry.	0.782	1.095	0.785	0.647
	LE2: When the phygital store services fail to perform properly, it generates a lot of disgust.	0.826	1.095		
Deterrence Emotions (Ovčjak et al., 2016)	DE1: When the phygital services fail to perform transactions properly, I fear losing my money.	0.869	1.400	0.868	0.767
	DE2: When the phygital store services fail to perform the operations properly, I feel sad.	0.883	1.400		
Customer's Favourite Behaviour (Ray and Bala, 2021)	INT1: I would love to use phygital retail services again.	0.835	2.254	0.874	0.700
	INT2: I would like to use phygital retail services in future.	0.758	1.858		
	INT3: I would like to refer the phygital retail services in future.	0.910	1.452		

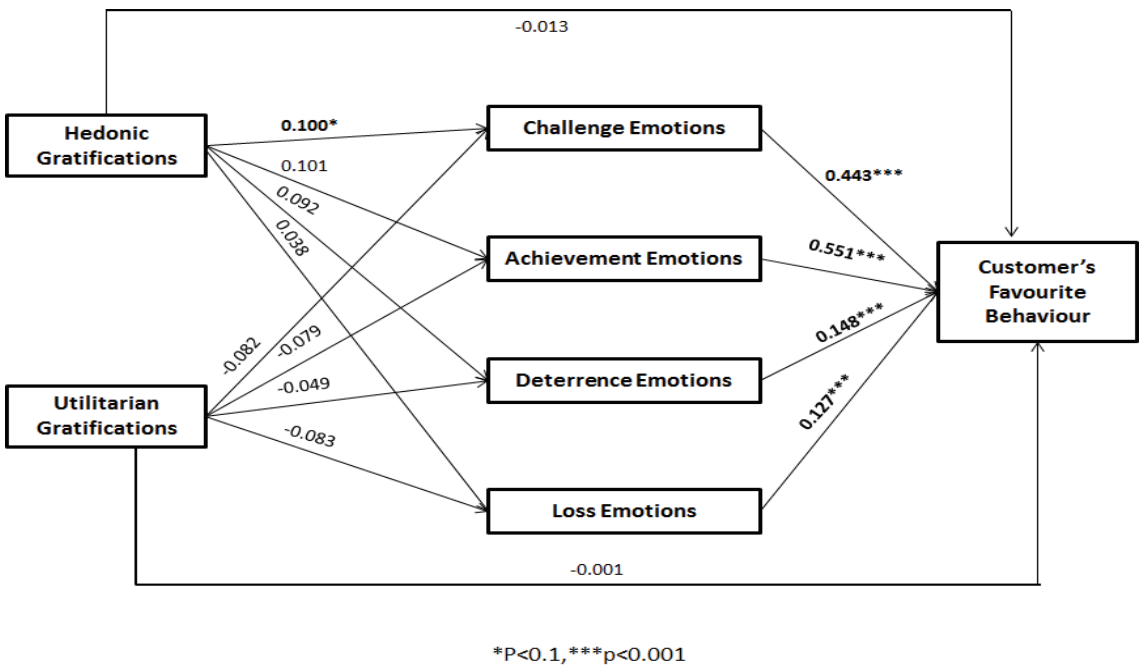
<Table 4> Discriminant Validity of Measurement Items

	AE	CE	DE	HG	INT	LE	UG
AE	**0.859**						
CE	0.656	**0.843**					
DE	0.089	0.088	**0.876**				
HG	0.087	0.086	0.084	**0.633**			
INT	0.868	0.831	0.306	0.089	**0.837**		
LE	0.119	0.116	0.56	0.024	0.327	**0.804**	
UG	-0.062	-0.065	-0.033	0.184	-0.081	-0.076	**0.746**

Note: Achievement Emotions=AE; Challenge Emotions=CE; Deterrence Emotions=DE; Hedonic Gratifications=HG; Customer's Favourite Behaviour =INT; Loss Emotions=LE; Utilitarian Gratifications=UG

<Table 5> Hypotheses Results

Hypotheses	β-values	t-Statistics	p-values	Significant?	Supported?
H1a. Hedonic Gratifications → Challenge Emotions	0.100	1.893	0.058	Yes	Yes
H1b. Hedonic Gratifications → Achievement Emotions	0.101	1.647	0.100	No	No
H1c. Hedonic Gratifications → Deterrence Emotions	0.092	1.378	0.168	No	No
H1d. Hedonic Gratifications → Loss Emotions	0.038	0.571	0.568	No	No
H2a. Utilitarian Gratifications → Challenge Emotions	-0.082	1.577	0.115	No	No
H2b. Utilitarian Gratifications → Achievement Emotions	-0.079	1.573	0.116	No	No
H2c. Utilitarian Gratifications → Deterrence Emotions	-0.049	0.770	0.442	No	No
H2d. Utilitarian Gratifications → Loss Emotions	-0.083	1.612	0.107	No	No
H3. Challenge Emotions → Customer's Favourite Behaviour	0.443	28.807	0.000	Yes	Yes
H4. Achievement Emotions → Customer's Favourite Behaviour	0.551	40.098	0.000	Yes	Yes
H5. Deterrence Emotions → Customer's Favourite Behaviour	0.148	8.568	0.000	Yes	No
H6. Loss Emotions → Customer's Favourite Behaviour	0.127	8.303	0.000	Yes	No
H7: Hedonic Gratifications → Customer's Favourite Behaviour	-0.013	1.042	0.298	No	No
H8: Utilitarian Gratifications → Customer's Favourite Behaviour	-0.001	0.093	0.926	No	No



<Figure 4> Results of the Bootstrapping Analysis for Hypotheses

<Table 6> Mediation Analysis Results (COG → EMO → CFB)

Total Effects (HED → CFB)			Direct Effects (HED → CFB)			Indirect Effects of HED on CFB			
β-values	t-value	p-value	β-values	t-value	p-value	Hypothesis	β-values	t-value	p-value
0.106	1.861	0.063	-0.013	1.042	0.298	HED → EMO → CFB	0.118	2.134	0.033

Total Effects (UTG → CFB)			Direct Effects (UTG → CFB)			Indirect Effects of UTG on CFB			
β-values	t-value	p-value	β-values	t-value	p-value	Hypothesis	β-values	t-value	p-value
-0.099	1.905	0.057	-0.001	0.093	0.926	UTF → EMO → CFB	-0.098	1.934	0.053

Note: COG=Cognition; CFB=Customer's Favourite Behaviour; EMO=Emotions; HED=Hedonic Gratification; UTG=Utilitarian Gratification

cognition and customer's favourite behaviour. The results (refer <Table 6>) revealed a significant total indirect effect of hedonic gratification (β = 0.118, p < 0.1) and utilitarian gratification (β = -0.098, p < 0.1) on customer's "favourite behaviour" towards Amazon Go. The total effects of hedonic (β = 0.106, p < 0.1) and utilitarian (β = -0.099, p < 0.1) gratification on customer's "favourite behaviour" towards Amazon Go were significant. With the inclusion of the mediator, the effect of hedonic (β = -0.013) and utilitarian (β = -0.001) gratifications on customer's favourite behavior became insignificant. Thus, the results show that emotions fully mediate the relationship between the cognition factors and customer's favourite behaviour. Hence, H9 is supported.

Ⅵ. Discussion

This work intends to understand the impact of gratifications, and emotions on customer's "favourite behaviour" towards the use the self-service interactive technology, Amazon Go, from the cognition and emotion theory stance. Thematic analysis revealed codes like, convenience, cashierless, technology, enjoyment, and experience. This shows that since Amazon Go is a recent concept and has very few stores (Grabham, 2021; Livemint, 2021; Polacco and Backes, 2018; Tillman, 2021). The authors of the articles have generally focused on their experience or the problems that they anticipate. Overall, Amazon Go is basically into the convenience store concept (Joshi, 2020) through which they intend to improve the shopping experience of the customers (Douglas and Butler, 2019; Kilcourse, 2018) by providing seamless personalized services (Trapica, 2020; Tillman, 2021). The emotional analysis performed on Amazon Go articles revealed positive emotions (achievement and challenge) like, fulfillment, excited, good, success, special, etc. and negative emotions (loss and deterrence) like, loss, pain, problem, annoyance, difficulty, etc. Thus as long as the Amazon Go service is good, users will develop positive emotions, like, achievement and challenge emotions (Ovčjak et al., 2016), which will help them to enjoy the service (Tillman, 2021; Trapica, 2020). However, when the Amazon Go service is not able to satisfy the needs of the customers, like, inability to take payment through cash (Book, 2018; Douglas and Butler, 2019), it is likely that the users will develop deterrence or loss emotions (Ovčjak et al., 2016), and will refrain from recommending it to others (Beaudry and Pinsonneault, 2010). Such results are also confirmed by the empirical analysis on the 522 reviews about Amazon Go using NLP-SEM

technique.

Results of the analysis show that although hedonic gratification has a significant positive impact on challenge emotions, it has no significant effect on achievement, challenge and loss emotions. Thus, while hypothesis **H1a** is supported by the data, **H1b**, **H1c**, and **H1d** do not hold true in this study. This can be due to the fact that when people enjoy the interactive services (Cheng and Jiang, 2020) because of reasons like ease-of-use, faster checkouts, etc. (Book, 2018; Cheng, 2019; Joshi, 2020), the users will have perceived control over expected outcomes and will see this as an opportunity (Ovčjak et al., 2016). However, results of this study show that hedonic gratifications have no significant impact on achievement emotions (like, happiness, relief, pleasure, etc.) because achievement emotions tend to grow after satisfactory continued usage (Ovčjak et al., 2016). Interestingly, hedonic gratifications have no significant impact on the negative emotions (deterrence and loss) which can be due to that fact that if users are not satisfied with the Amazon Go services, they will look for other available alternatives. On the other hand, we note that while utilitarian gratification has no significant relationship with the emotions (challenge, achievement, deterrence, loss) (**H2a**, **H2b**, **H2c**, and **H2d** are not supported). Interestingly, we find that utilitarian gratifications do not have any significant impact on positive emotions (challenge and achievement), because utilitarian gratifications mostly deal with acceptance of technology (Luo et al., 2011). Interestingly, it is noted that users do not express positive emotions more for some technological upgrading because they are used to such technological advances (Joshi, 2018) in one sector or the other. However, if they do not get the intended services, they will be annoyed and frustrated. The insignificant influence of utilitarian gratifications on the emotions might be because customers are used to the utilities of retail shopping but what Amaozn Go brings is more of hedonic benefits which enhances the way customers perform offline retail shopping.

Findings reveal that the emotions have a significant impact on customer's "favourite behaviour" (**H3**, **H4**, **H5** and **H6** are statistically significant). However, loss and deterrence emotions should reduce customer's "favourite behaviour" and hence H5 and H6 are rejected. This means that when users feel that they are not getting the required perceived technology advantages, like, ease-of-use, seamless shopping experience, etc. (Venkatesh et al., 2003) from Amazon Go, they will exhibit more negative emotions like, anger, frustration, annoyance, etc. (Ovčjak et al., 2016; Tombs et al., 2014). Since the unique proposition for Amazon Go is seamless cashierless service, if Amazon Go is unable to maintain that service, users will have perceived lack-of-control over their emotions and will pose a threat for the service (Ovčjak et al., 2016) because these users will tend to spread negative word-of-mouth. Additionally, we also note that the impact of achievement and challenge emotions are more on customer's "favourite behaviour" than loss or deterrence emotions. This is because the achievement and challenge emotions will provide primary appraisal opportunity (Ovčjak et al., 2016) and hence users will be more intended to use the services again. However, when users portray more of loss or deterrence emotions, they may use the service again but their "favourite behaviour" will get reduced (Beaudry and Pinsonneault, 2010; Cote, 2019; Ovčjak et al., 2016). The study results show that loss and deterrence emotions have less impact on customer's favourite behaviour than the positive emotions (challenge and achievement). Thus, we note the impact of emotions on customer's "favourite behaviour".

The findings of this study are in line with what

earlier studies have found. It is evident from the customer reviews that hedonic gratifications are important to influence customer favourite behaviour (Cheng and Jiang, 2020; Cheng, 2019). However, unlike what earlier studies have noted (Gan, 2017; Mouakket, 2018) utilitarian gratification had a negative impact on customer's "favourite behaviour". There is an insignificant direct effect of both hedonic and utilitarian gratifications on customer's favourite behaviour. The full mediation effect suggests that customer's emotions play a very important role in the relation between the cognition factors (hedonic and utilitarian gratifications) and customer's favourite behaviour. Similar to earlier studies (Khandai et al., 2022; Yao et al., 2020) the mediating effect of emotions suggests that when the different gratifications trigger different emotional states in a customer, their behaviour changes accordingly. The study shows the impact of gratifications on different emotions and their impact on customer's "favourite behaviour". Thus, the findings of this study shows support for the research questions RQ1 and RQ2. We also note a significant impact of emotions on user behaviour in case of phygital retail which justifies our claim through RQ2.

6.1. Theoretical Implications

First, there are limited studies that have explored customer behaviour in the context of phygital retail, like, Amazon Go, even though phygital retail is considered to be the future of retail stores. This work contributes to the literature on phygital stores. Second, the findings of this study on phygital retail stores will help future scholars use the emotional variables to understand customer behaviour. Although this work is focused on Amazon Go, the findings will be helpful for researchers working on different interactive technologies.

Third, the use of mixed-method approach utilizing only UGC (articles and blogs on Amazon Go for qualitative analysis and customer reviews about Amazon Go for empirical analysis), provides a new approach for researchers. This also contributes to the limited research on NLP-SEM based techniques which can help to analyze path models based on rich online textual content (Ray et al., 2021).

Fourth, this study has explored different emotions and gratifications from the UGC for understanding customer behaviour. This helps scholars in mainly three scenarios: (a) when it is difficult to collect data from large number of respondents or participants easily; or, (b) when we want data from a larger population in short span of time; or (c) in situations like Covid-19 pandemic where getting customer perspectives through face-to-face discussions may not be possible. Additionally, this study also contributes to the limited literature on the impact of gratifications on emotions.

Finally, this study has utilized the cognition and emotion theory which is not used frequently in case of interactive technologies. However, this theory (as used in this study) can help future scholars to capture how cognitive aspects affect customer emotions which in-turn affects customer favourite behaviour. Additionally, this study shows the impact of emotions on customer's favourite behaviour and the impact of hedonic gratifications on challenge emotions. The implication that hedonic and utilitarian gratifications have an indirect effect on customer's favourite behaviour will help scholars focus on improving the enjoyment and functional aspects of interactive technologies.

6.2. Managerial Implications

There are three main managerial implications.

First, utilizing UGC can help organizations to make use of the vast amount of customer reviews to analyze customer views better. Apart from using sentiment and emotional analysis, the UGC can be used in path analysis as used in this study which can be helpful for managers. Additionally, analyzing UGC can help organizations collect data from a wider-population easily. Such studies will also help organizations collect the etic perspectives easily in challenging situations like Covid-19.

Second, findings show that emotions affect customer behaviour. Hence, it is important for organizations to understand the varying emotions portrayed in customer reviews. Customers portraying more of deterrence and loss emotions are more likely to discontinue the particular service. Additionally, customers portraying achievement and challenge emotions will likely spread positive word-of-mouth. Since product/service based companies receive customer reviews/feedbacks, identifying customers belonging to these different emotion (loss, deterrence, achievement, challenge) groups will help organizations adopt different marketing strategies and try to make them loyal ones. The study findings show that targeting the customers portraying challenge and achievement emotions will help to spread positive word of mouth and will increase their intention to recommend.

Third, results of this study show that while hedonic gratification has a positive effect on challenge emotions, utilitarian gratifications have an insignificant impact on the emotions. For enhancing customer experience in case of interactive technologies, it is important for providers to make the service more interactive, efficient, and enjoyable for inciting the challenge emotions which lead to excitement and appraisal. Since in recent years, the growing benefits of phygital experience has seen its emergence in different business segments like, grocery retail, banking, footwear (Brenner, 2020; Sorensen, 2020), fashion (Paul, 2019), etc., the findings of this study will help organizations prepare better phygital marketing strategies by exploring how they can provide hedonic gratifications to their customers. Additionally, organizations should try not to instigate the loss emotions by failing to meet customer's perceived gratifications related to convenience, compatibility, ease-of-use, etc. because customers portraying loss emotions will likely spread negative word-of-mouth.

6.3. Limitations and Future Scope

This study has few limitations. First, since Amazon Go is a new concept and is present in few locations, the reviews about Amazon Go are very less. This study is limited by the sample data used in the quantitative study. However, since the study aims to understand the drivers of customer behaviour from those who have used the services, it was best to use the customer reviews because it does not have any commercial biases (East et al., 2008). Although, future researchers can utilize a questionnaire survey to gain customer perspectives, the results of the NLP-SEM based approach cannot be overlooked. In-fact, NLP-SEM approach helps to get better view of the customer perspectives (Ray and Bala, 2021).

Second, it is to be noted that the results of this study is generalizable to similar product/service market segments only. Organizations into totally different business areas will have other drivers of usage behaviour. Future scholars can work on different business segments.

Third, in this study we have mainly focused on the utilitarian and hedonic gratifications in this study. Future scholars can work on understanding how social interactions affect usage intentions. Fourth, accept-

ance of Amazon Go in developing countries could not be captured because Amazon Go has only around 27 stores in mainly the US and the UK (developed countries) as of March 2021 (Grabham, 2021; Livemint, 2021; Tillman, 2021). Future scholars can work on factors affecting acceptance of interactive technologies in developing countries.

Finally, in this study we have considered all the online reviews available without filtering the reviews coming from self-selected reviewers and others. Future researchers can use a combination of natural language processing and supervised machine learning techniques to filter reviews which can improve the results.

Ⅶ. Conclusion

The aim of this research is to understand the effect of gratifications and emotions on users' favourite behaviour in case of phygital retail (here, Amazon Go). Earlier studies have not utilized user-generated content to analyze the factors affecting the acceptance of phygital retail. Additionally, extant literature has not examined the impact of emotions on customers' favourite behaviour explicitly using user-generated content only. In this study, using a mixed-method approach and text-mining techniques like topic modeling, emotional analysis and NLP-SEM technique, we have not only found themes like convenience, technology, experience and enjoyment, but also noted that emotions have a significant positive effect on customer's favourite behaviour. Additionally, we found that hedonic gratifications have a positive impact on challenge emotions. This study also has both practical and theoretical implications like, providing a new dimension of research in context of interactive technologies, and the fact that emotional analysis can be utilized by organizations to group customers into different segments for providing them with different benefits.

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