Impact of Gamification on Social Network Platforms

An empirical study concerning the motivational drivers influencing user interaction on digital platforms using TikTok as a case study

May 2020

MSc in International Marketing and Strategic Brand Management

Supervisor: Javier Cenamor

Abstract

<u>Title</u>	Impact of Gamification on Social Network Platforms.
<u>Date of seminar</u>	4th June 2020
<u>Course</u>	BUSN39 Business Administration: Degree Project in Global Marketing
<u>Authors</u>	Dawud Yakubu and Suzanna Nikolic
<u>Supervisor</u>	Javier Cenamor
<u>Keywords</u>	User-Generated Content, motivation, digital platforms, viral-marketing, social media
<u>Thesis purpose</u>	What impact does gamifying an online platform have on end-users' willingness to interact with a platform using user-generated content
<u>Methodology</u>	Our model-testing was conducted using component-based PLS-SEM in SmartPLS 3. Confirmatory Factor Analysis (CFA) was used in order to confirm the hypothesized model and ensure the model is a good fit to the data.
<u>Theoretical perspective</u>	Theories regarding gamification and Technology Acceptance Model
<u>Empirical data</u>	Using TikTok as our survey subject, we collected data from 281 respondents via Qualtrics by distributing the survey online
<u>Findings/conclusions</u>	Reward is positively related to end user's willingness to interact through playfulness, recognition and social influence while challenge is positively related to end-users' willingness to interact through social influence
<u>Practical implications</u>	Managers should consider gamification as an effective approach to enhance user interaction on social network platforms and as a viable way to promote customer engagement that will lead to an overall increase in sales.

Acknowledgments

We would like to thank our Master's thesis supervisor Javier Cenamor, who has helped us in developing our Master's thesis by providing guidance, knowledge, motivation, and most importantly positivity throughout the process. We are very grateful for the help and expertise we had from Antonio Marañon. A special thanks go to our fellow colleagues at LUSEM who have been very helpful throughout this period. Finally, we would like to thank our family and friends who have shown support throughout our Master's degree.

Table of contents

1. Introduction

In this thesis, we conduct a study into the reasons behind the popularity of Social network platforms with a particular focus on TikTok. In recent times, the platform has seen a tremendous increase in its usage. We investigate the gamification effects on TikTok and how it impacts users' intentions. Following is the background to TikTok, and how it has thrived among younger populations. We progressed to highlight the challenge and essence of comprehending how gamification applications may have impacted the adoption and popularity of TikTok.

1.1 Background

From the Social network platforms such as Duolingo, PokemanGo, Houseparty, and to the most recent Tiktok, these platforms all have something in common, they have gone viral amongst the younger generations. It is like a chain reaction where people talk about both positive and negative aspects that make up the platform and this is how it keeps tracking us on our social media feed everywhere we go. We all seek communication as a purpose of being understood and viral social network platforms help us find a sense of belonging in our own network circle. We can compare the motion of spreading viral content as if you are at a sporting event or concert in a large stadium and somebody starts "the wave" (Scott, 2009). Virality is practiced by all the propagators who are connected to each other and communicate by passing on promotional messages (Moldovan, Steinhart, & Lehmann, 2019) and other marketing media within their social networks (Bampo et al. 2008).

Most people who own a smartphone are constantly encountering different content on social media and this leads to engaging with content across several digital devices and platforms. It is vital for companies to be aware that content creation is not only suitable for short campaigns aiming to go viral but an act of ongoing delivery and engagement (Stokes, 2018). Ever since the advances in technology, we have witnessed how the internet has revolutionized the way we interact with media online. We can do so many things, especially now that we are able to collaborate, publish, share content and ideas easily, in real-time and with people all over the globe. All this online sharing and collaboration is facilitated by the phenomenon of social media (Stokes, 2018). Creating something worthwhile nowadays can be a very difficult challenge for marketers in order to harness the power of virality (Scott, 2015), as one needs to entertain using informative and interactive messages, which are designed to be passed along in an exponential manner. In fact, 70% of people rely on information search by engaging and using social networking platforms (Alghizzawi, 2019). The most effective viral marketing campaigns are being done using rich real-time media, such as streaming videos which have the potential to go viral across multiple platforms within seconds, this was made easier with the newly introduced social media features such as the hashtag

revolution, Instagram stories, and Facebook live stream, as well as the retweets on Twitter. Going back to the recent trend and the subject of our study, the TikTok platform where users submit and share short videos using hashtags and perform dance and other fun challenges. It is a space for users that are part of a content generation community that shares the same ideology and similar activities. TikTok also helps young people express themselves and deal with emotions; worldwide users can connect and watch each other's videos, understand each other's jokes, participate in each other's trends, and give advice on things we have all experienced (Galea, 2020). Although people are not remunerated for making these viral videos, the aim is to intrigue the viewers and make them want to participate as well and there is the chance of being recognized, going viral, or becoming 'TikTok famous', empowering everyone from ordinary people to famous people and businesses. The motivation for marketers is still on the rise and the chances for businesses using TikTok are optimal since it is estimated that only 4% of marketers are using TikTok, making it the least popular platform in this regard (Iqbal, 2020). For instance, during the COVID-19 psychologists are also using the video-sharing platform to reach out by creating videos with tips on how to face the day, thereby enabling them to experience surprising levels of engagement (Galea, 2020).

However, it all comes down to the social currency, and nowadays we are witnessing the high usage of gamification characteristics intertwined with the power of user-generated content. The role of gamification strategy is taking the lead in increasing viral content creation via these platform approaches and integration is vital during this digital age. Recent studies reveal that 70% of large brands, as well as around 80% of small businesses, tend to use social media to improve their business performance (Islam, Rahman, & Hollebeek, 2018). Behind the viral marketing strategy and gamification concept, there is the conversion of content shared into profits for companies, in fact, study shows that 87% of marketers would like to know how to measure the return on investment (ROI) through online social networks (AlSuwaidan, & Ykhlef, 2016), in order to help them increase profitability by interacting with social media users who would want to engage with them through viral and original content.

The online activity is highly impacted by human behavior such as opinions, recommendations, comments, and reactions (AlSuwaidan & Ykhlef, 2016) therefore understanding this behavior and its consequences is a key factor to success in viral marketing. It is important to consider the measures of reachability, for instance, TikTok currently has 800 million active users worldwide since the launch in 2016 (Datareportal, 2020). Considering the speed of virality one would imagine it is very difficult to control and manage the diffusion chain. Tiago, Faria, and Couto (2016) discovered 4 dimensions that are commonly used by marketers that want to create effective engagement: storytelling, considered as the most effective by most marketers, amusement, triggers, and reaction. It is clear that the social networking app, TikTok ticks all the boxes with a user engagement rate of 29% which is expected to increase in the coming years (Wikipedia, 2020). During the times where people are staying at home due to the global pandemic, the same users are

9

seeking novelty, relatable entertainment and this is one of the ways of ensuring the success of TikTok and making its way to the top list of social media platforms by giving the users the free opportunity of generating creative content. These short videos created by anyone are being shared on all the social media platforms and simply going viral every single day.

Businesses want to be mentioned and be part of the virtual discussion as they want people to remember them, therefore they have to make use of the advantage that platforms like TikTok can offer. For example, brands could start challenges from their own account and get exposure via TikTok (Heijmeskamp, 2020). Companies pursuing online marketing strategies need to keep in mind that the viral pattern remains iterative and relevant at all times, but most importantly is to remain current, relatable, and stay on the same page as your viewers. A few shares amongst the right audience are able to initiate an avalanche of sharing across the internet and thereon it is similar to a snowball effect (Lifewire, 2020). For example, Cindy Gordon, vice president at Universal Orlando Resort, when she launched 'The Wizarding World of Harry Potter', told just seven people about the new attraction and those seven people told tens of thousands (Scott, 2009).

The realization of incorporating gamification in business models has become a modern way to help gain the online momentum required (Nacke & Deterding, 2017). Gamification, as a technique to engage members of the millennial generation and beyond, has gained considerable traction. Rewards for participating in activities, rather than the rewards for achievement is an expectation for the millennials (Meister & Willyerd, 2010). The core of viral marketing and social media platforms is formed from the co-created value shared between viewers and marketers by capturing the story essence, enhancing the relationship and by communicating the ethos elements in order to enhance the personal connection. There are still existing debates on which strategy benefits the company most, between traditional marketing strategy and viral marketing strategy. Since data mining is still considered as a costly approach, traditional marketing is set to be preferred as a safer option. Viral marketing is perceived as riskier, since it is formed by content marketing which serves as a pull mechanism for the marketer rather than a push mechanism. When compared to traditional marketing, viral marketing is considered to be a gentler approach, especially in advertising (Stokes, 2018).

Another interesting gamification approach that aims to increase sales and awareness by using viral marketing techniques and real-time promotion is the user-generated content for social media contests where viewers share and participate in the promotional content as soon as they see it. In such cases, users are interested because there is a reward involved and not necessarily having the intention to prove that they are loyal customers. But what motivates users to eventually use social network platforms that go viral and what benefits do they think they gain from being part of the chain of millions of users? Therefore, from past research, we see a lack of understanding with regards to the effect of gamification on the virality of platforms and the underlying motivation for end-users to interact.

1.2 Problematization

The emerging curiosity we set to satisfy and confirm is with regards to what drives social media users to engage and potentially share content on or from Social network platforms, and how this is influenced by the use of gamification. There is an abundance of studies that assess both psychological mediators and behavioral outcomes of prospective motivation to engage with new technology (Nacke & Deterding, 2017). However, this study will seek to determine the relationship between motivating drivers derived from gamification, mediated by hedonic motivations, and the willingness to interact among end-users and with the user-generated content, by using the subject of TikTok as part of our empirical research. The user motivation formed by gamification is to be prominent and the main focus in this study. The relevant factors in determining the behavior on the internet are hedonic and social aspects and understanding what are the sources of motivation that facilitate the interaction stimulus (Islam, Rahman & Hollebeek, 2018). Furthermore, we will discuss the impact of gamified aspects that enhance the virality of platforms and the opportunities and platform characteristics that marketers can tap into for value creation by using intrinsic motivation variables derived from gamification drivers.

1.3 Research Purpose

Based on the problematization developed, our research aims to investigate the factors that impact the end-users interaction with social network platforms. With a specific focus on TikTok as a recent, trendy, and viral platform, we aim to investigate the gamification elements of the platform, which provide enticement for end-users and make it more captivating to interact. In recent times the platform's popularity has accounted for numerous viral content across a variety of other platforms such as Instagram, Facebook and Twitter. Consequently, the shared content obtains the reachability that otherwise would have been difficult to gain without the platform. Although networked visibility and the meme culture of social media may have helped accelerate the viral process, the prerequisites for publicity and proactiveness has increased social pressure on both message senders and receivers (Kwon, 2019). To many organizations, it is an ongoing challenge to change the way they communicate as they enter into a more dynamic digital world where their audience is scattered all over the virtual network. There are some current challenges and obstacles within the online environment and the process of virality is often portrayed as a random ground-up phenomenon over which marketers have little or no control (Wuyts et al. 2010).

Through our research, we hope to address the lack of clarity of how gamification elements impact the motivation for platform end-users to interact among themselves and with the platform itself. With a model that highlights gamification, hedonic and social motivations, we hope to identify the

impact of fundamental features of a platform that motivates users to interact with the platform. The fundamental variables include reward, challenge, enjoyment, playfulness, recognition, and social influence.

In this research, we investigate the audience consisting of viewers and users, serving as active participants in both content creation and the spread of the content generated on the platform. The audience is the social network users, the propagators, and the ones who engage or would like to engage in online viral and entertaining activities. This research will serve the multiple purposes of understanding how motivation from gamification impacts users' patronage of social network platforms, as well as enriching the understanding of how to enhance motivation to interact with the content shared online. Through this work, we hope to generate relevant answers that can guide marketers in making the right use of gamified content through adhering to specific metrics and indicators that emerge from the study of users' motivations.

1.4 Research Question

Given that our area of focus is about the gamification and other motivational drivers that influence users interaction with social network platforms, and based on the gaps identified from existing works, we are aiming to address the following research question:

"What impact does gamifying an online platform have on end-users' willingness to interact with a platform using user-generated content?"

1.5 Intended Contributions

As stated earlier, the concept of gamification in marketing is generally perceived as a relatively new concept. Understandably, its relevance has only increased with the rise of the millennials and Gen Z population. Due to global patronage of Social network platforms such as TikTok, and the increasing popularity of its shared content across social media platforms such as Facebook, Twitter, and Instagram, the need to study the impact of gamification applications has increasingly become necessary. As disclosed by Lucassen and Jansen (2014), there is a gap in the study of the effectiveness of gamified marketing campaigns. Through our study, we should be able to relate the impact of gamification, not just on social network platforms, but also across social media marketing practices in general. Furthermore, the main concern raised by Humari (2013) was the absence of literature to provide information as to where the users of gamified platforms truly get

the motivation and playful, fun experience that such virtual spaces promise. Thus, we hope to address this concern through our studies.

Besides, from multinational corporations to the average small and medium-scale business today, most businesses have some form of presence online and seek to stand out amid the inundation of content online. Learning from the successes of TikTok, businesses can inculcate the application of gamification, both in their content creation for advertisement and also in other aspects of their business that will benefit greatly from consumer participation and co-creation.

Through this work, we hope to generate relevant answers that can guide marketers in creating effective content through the application of gamification, by touching upon the aspects that can make users interact via content creation and making content go viral. This will go a long way to assist brands to be cost-effective in reaching their customers as well as reducing the risk associated with ineffective online campaigns. Moreover, this research will elaborate further on the discussion of motivations to interact emerging from gamification in marketing and has a role in resolving any existing concerns regarding how marketers can understand their customers and how to match that with the right practices.

2. Literature Review

In this section, we provide a collection of existing knowledge that relates to the gamification of social network platforms. Given that our field of study is bound to marketing and business management, we restrict our focus to the existing studies that intersect with the applications of gamification on social network platforms in manners that affect marketing goals and decisions. We categorize these studies into four sub-sections. These are; Social network platforms, User-generated content, Gamification, and Motivational theories. We will thus conclude this section with a summary of how these various categories intersect and their impact on our subject of study. The Internet allows people all over the world to not only communicate with each other but also to form and maintain relationships (Ho & Dempsey, 2010). We would like to investigate the motivational drivers that influence social media users to engage with social network platforms that have associated contents that tend to go viral across various media. There is not sufficient literature exploring the underlying reasons which motivate online users to sign up, participate, and eventually share the content they encounter on these platforms. We are taking TikTok as part of our empirical research and further explore the role of its gamification elements as it is one of the most recent forms of media for viral content online.

2.1 Motivational Theories

In this study, one of the key aspects is defining the underlying motivational factors with regards to engaging in viral and user-generated content, previous literature has shown several theories associated with motivational behavior with regards to online interaction. Literature concerning motives for sharing online content has focused mostly on the FIRO theory by Schutz (1976). This theory focuses on the interpersonal needs and claims to account for both the what and the why of an individual's actions toward others. The study by Ho and Dempsey (2010) clarifies how the act of forwarding online content is closely related to the motives described in the FIRO theory. This theory describes that the better we feel about ourselves, with regards to having more views, likes, and shares, or positive reactions in other terms, the more we contribute towards the content generated by others. FIRO theory has been used by researchers investigating the dynamics of social behavior and it relates to the communication phenomenon of forwarding content.

Along the same lines, Self-determination theory has been mentioned in several motivational kinds of literature, SDT emphasizes humans' natural growth towards positive motivation. Other previous motivation models followed the self-determination theory, this theory helps to understand what, how and why human behavior is initiated and regulated by discussing social and environmental conditions that could affect personal decisions and engagement in activities (Ruengaramrut, 2019). However, SDT suggests a different approach to motivation; as opposed to seeing motivation as one concept, it makes distinctions between different types of motivation (intrinsic vs extrinsic) and their consequences (Deci & Ryan, 1985). We will show that gamification tends to strengthen the

14

intrinsic motivations more than extrinsic because extrinsic motives are imposed by pleasant forms of rewards and controlled whereas intrinsic originate from within the users themselves, having an objective and motive. The variables we will be investigating are connected to the motivation that comes from the interaction of the UGC on the platform and how it encourages the motivation to be more interactive.

On a similar note, we came across the theory of planned behavior (TPB) which incorporates some of the core concepts of the social and behavioral sciences, and it defines these concepts in a way that permits prediction and understanding of particular behaviors in specific contexts (Ajzen, 2012). TPB shows how the final behavior transcends from the intention to do something, supported by the attitude, subjective norm, and perceived behavioral control. We did not find this theory directly suitable for our particular study due to the fact it focuses more on behaviorism and not motivational factors, unlike the model we find fitting for our research. Following the model we will focus on in order to carry out our empirical research, we based our framework on the Technology Acceptance Model (TAM) which is part of the UTAUT model (Unified Theory of Acceptance and Use of Technology). This model was used by Yahia et al. (2018) when investigating the drivers for social commerce motivations on various social media platforms. Four core components that make up the theory are; effort expectancy, social influence, performance expectancy and facilitating conditions. Furthermore, Venkatesh et al. (2012) developed UTAUT 2 from the original theory by adding hedonic motivation, price value, and habits to the model in order to explore the drivers derived from pleasure, cognitive behavior, and psychological motives for using technology. This model captures an integrative perspective and has in-depth explanatory power in comparison with other technology adoption models.

Numerous empirical studies have found that TAM consistently explains a substantial proportion of the variance in usage intentions and behavior and that TAM compares favorably with alternative models such as the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) (Venkatesh & Davis, 2000). TAM has become well-established as a robust, powerful model for predicting user acceptance and motivation towards a new system, in the case of this empirical reference the most popular social media platform, TikTok. This model is related to our research because we intend to find what makes users interested and why they are motivated to be part of this social network platform as well as satisfy the curiosity on the gamified effect on the targeted audience.

2.2 Social Network and Digital Platforms

Platforms can be described as frameworks that permit collaborators such as users, peers, and providers to participate in several activities. In many cases, they create an ecosystem through which value is created and appropriated (Kenney & Zysman, 2015). Jacobides, Cennamo, and

Gawer (2018) also defined an ecosystem as a group of interacting firms that depend on each other's activities. The authors explain that the study of ecosystems has been in three folds with the first one focusing on individual firms viewing ecosystems as a community of organizations and individuals that have an impact on enterprise and its customers and suppliers. The second study aspect views ecosystems as a collaborative system through which both firms and individuals work together to create and commercialize innovations for the end-user. The third study aspect is focused on the specific class of social network platforms and the interdependency that exists between them. McIntyre and Srinivasan (2017) explained that a network will often have two users, mainly individuals or firms who desire compatibility and interaction. They establish that the basic premise of platform-mediated networks lies in the value that users place on platforms that have a larger number of other users.

In the platform ecosystem, operating system platforms such as Android and iOS have become the pivot in the mobile telecommunications industry (de Reuver, Sorensen & Basole, 2018). de Reuver, Sorensen, and Basole (2018) state that the rise of peer-to-peer social network platforms such as Uber and Airbnb has led to the creation of a sharing economy. Meanwhile, platforms such as PayPal, Apple Pay, and Square have disrupted the global financial industry. The authors assert that, as a consequence of the growth of social network platforms, competition has evolved from the control of the value chain to how to attract generative activities related to the platform. Adner and Kapoor (2010), explain that the platform ecosystem consists of a platform and its existing network of complementors that create complements through which the platform's value is enhanced. In many cases, they add, that the installed base of a platform, which refers to the population of active users on the platform, is a key factor in developers' decision of which complementary goods to go for. On the other hand, the existence of complementary goods also serves as a key decision factor for consumers as they consider which to adopt. The consequence is that the installed base is further enhanced. In addition, as a result of the network effects, complementors who invest in developing products on platforms will in most cases, prefer to develop products for platforms that have strong network effects. In essence, a platform's success is highly dependent on the relationship between the parties within the network. Corcoran (2009) states that ecosystems exist in three media types. These are, owned media – controlled by the market, paid media – bought by the marketer and earned media – marketers have no control over. Examples are company website, sponsored advertisement, and viral content respectively.

Eisenmann (2007) adds that the increased value attributed to network participants is mainly based on the number of other users in the said network. As an example, a social network like Facebook and LinkedIn has a value directly proportional to the number of users on the platforms. According to McIntyre and Srinivasan (2017), a platform-mediated setting may have network tools through which the platform can have a competitive advantage by stimulating value co-creation with the network. The authors further explain that a platform-mediated network may have direct network effects and indirect network effects. The direct network effect is experienced when the benefits of network participation related to a user are contingent on the population of other network users with

16

whom they interact. On the other hand, indirect network effects are experienced when varying sides of a network are able to equally benefit from the size and features of the comparable side. In many cases, the indirect network effects exist to complement the direct network effects. The authors add that platforms can be said to represent interfaces that are embodied in products, services, or technologies that play the role of mediating transactions between two or more sides. An example is a network of buyers and sellers as can be found on eBay. They attribute that, in many cases, this understanding of platforms highlights its function as the foundation on which other products or services are built.

Ghazawneh and Henfridsson (2013) built on Tiwana et al. (2010) to define Social network platforms as "software-based external platforms consisting of the extensible codebase of a software-based system that provides core functionality shared by the modules that interoperate with it and the interfaces through which they are interpreted''. They explain that the perspective of what platforms are can be relative. For instance, the telecom operators perceive mobile payment systems as generative platforms that can be rented out to third-parties. On the other hand, financial institutions as banks may handle such platforms as internal platforms that must be controlled for the purpose of harnessing competitive threats. For a digital platform to be sustainable, the authors add, social network platforms have to be generative and able to evolve over time. It is worthy to note that platforms are of less relevance to end-users unless there are services running on such platforms. According to the authors, there has been an increase in social network platforms that are operating as multi-sided markets.

Labrecque et al. (2013) explain that when in the context of digital platforms, there are various types of consumer power namely: Demand-based Power, Information-based Power and Network-based Power. The authors explain that Demand-based power arises from the sum of the impact of consumption and purchase behaviors that come from the internet and social media technologies. Information-based Power on the other hand is based on the consumers' ability to consume and to produce content. Lastly, Network-based Power revolves around the transformation of content through the distribution, remixing and enhancement of digital content. The authors also found that the strength and connections in a person's network significantly increase the person's ability to share and influence others as well. This in turn empowers consumers who engage in content distribution irrespective of who generates the content. Through interactions such as liking, commenting and tagging, individual consumers are able to influence others' decision-making via social network platforms. According to the authors, Crowd-based Power also exists. This is achieved through the pooling of resources in manners that both individuals and groups benefit.

In recent times, platforms such as YouTube, Facebook, and Twitter have grown significantly in value although many still regard them as stand-alone elements rather than a constituent of an integrated system (Hanna, Rohm & Crittenden, 2011). Gerretson (2008) adds that the digital platform has increased from consumers merely searching for information about products and services to them, desiring to interact with the companies from whom they purchase products. There

17

is no doubt that social media has permanently transformed the marketing ecosystem. Hanna et al. (2011) refer to the myth that mobile phones' only usage is phone calls and also the idea of making available a forum for customers to engage will be disadvantageous to businesses. Both myths, today, will be regarded as obsolete ideas. The authors explain that social networks and blogs have provided the tools and opportunities for individuals to be able to create, share and recommend information in a wide array such that it has influenced an extension of the marketing arena. These innovative ways of interaction brought about by social networks have enabled marketers to enroll passive consumers aboard as active participants.

In their study, Hanna et al. (2011) investigated the case of the 2010 Grammy Awards which utilized social media as an instrumental part of bringing the event to stardom. Through leveraging the social media ecosystem, the event became top-rated for the week and increasing its viewership among young people to 32%. The authors state that the Grammy's "We're All Fans" campaign was a strong indicator of the growing relevance of Web 2.0 in consumer interaction.

According to Gil-Or (2010) and Smith (2011), 88% of marketers use social media, spending around $60 billion annually on social media advertisements. In their study, Witning and Williams (2013) disclosed that many respondents see Facebook as "a place to interact and socialize with others" and the respondents explained that social media platforms gave them the opportunity to contact more people than they could in face to face.

Pew Research Center (2012) conducted a survey that revealed young adults between 18-29 have a higher tendency to use social media such as Pinterest, Instagram, and Tumblr. The study showed that women and people who live in urban areas are more likely to use these websites than men. Pinterest attracts 15% of internet users to its platform, while a platform like Tumblr has 6% of internet users. Their study shows that Facebook is still the most popular social network with about two-thirds of internet users (Pew Research Center, 2012).

Social media has also increased access to information and has enhanced the voices of consumers. According to Labrecque et al. (2013) as per Facebook's algorithm, content such as videos and photos induce higher levels of engagement as compared to non-visual images.

Anderson (2020) states that prior to TikTok, there was Google+, which was established as a competitor to Facebook but was eventually shut down. Vine, a social media platform for the creation and sharing of video clips was also shut down in 2017. Since the era of Vine, social media has seen waves of video content creation and distribution. As Aderson (2020) explains, Musical.ly, a lip-syncing application became the most downloaded app on the Apple store in 2015. Later on, ByteDance purchased Musical.ly, then eventually merged with TikTok in 2018. As of 2019, as the author reports, TikTok became the second most downloaded app globally with over 176 million downloads (Business of Apps, 2020). Brensnich (2019) describes TikTok as a virtual playground where young people feel at ease to play. As an algorithm-driven platform, TikTok sets itself apart from other platforms. The author explains that one of the platform's main uniqueness is the ability

of content from a person with virtually no following to reach millions of users, a feature that encourages users to create their own videos. This, he notes, was perhaps the reason "Old Town Road " by Lil Nas X became the first viral TikTok meme to go on to top the music chart.

2.3 User-Generated Content

User-generated content (UGC), such as online reviews, social media, and blogs, provide extensive rich textual data and is a reliable source from which one can identify customer needs more efficiently (Timoshenko & Hauser, 2019). Sharing has become the default mode of UGC interfaces such as YouTube, Instagram, and Facebook (Van Dijck, 2009). One can have a closer look at how the phenomenon of UGC has elevated and is given more attention during the isolation times of the recent pandemic of the COVID-19. UGC can be a source of creativity by anyone who is willing to share their own material on the web, where other users are seeking entertainment and inspiration or perhaps motivation. Based on the uniqueness of social media, recent research has focused on the impact of user-generated content in influencing brand reputations and brand development, as well as brand co-creation in their marketing practices (Vinerean, 2017). After looking at the current trends in the digital market of UGC, TikTok is the perfect example of this phenomenon, by bringing users together every day. It is very opportunistic in business terms, as it is transforming UGC as we know it, as well as the communication between marketers and adopters. Marketers working within retail and commerce can use UGC as a point of reference for understanding customer needs and get the best possible feedback from customers as they are more likely to prefer and trust what individuals who are similar to them are able to create, show, use and tell (Timoshenko & Hauser, 2019).

The kind of users that would engage with a UGC based platform must have a passion for humor and entertainment, in fact, Van Dijck (2009) points out that entertainment-driven users are more likely to participate in UGC activities, closely followed by career-driven users. Normally users are attracted to these platforms because of their novelty, however, as soon as the entertainment value along with the viral effect decreases, they will seek a new platform or change habits eventually (Van Dijck, 2009). Many contributors to UGC are enthusiasts who make home videos for a small circle of family and friends, and this is the third most important driver for producing content, starting small. Video-sharing sites have quickly become this giant cake that everyone wants a piece from, especially talent seekers. TikTok has content that is generated by other users and they create challenges and provide inspiration for others to try similar things and basically used as a source of self-entertainment or sharing their short videos. If we take a look at one of the major video platforms, YouTube, the intentions were to democratize the entertainment process by giving ordinary people the opportunity to perform for large audiences for free and without any restrictions (Van Dijck, 2009). According to Lessig (2004), UGC platforms are stimulated by a democratic

19

culture and dominated by creative amateurs and provide free culture, however, this has been countered by strong criticism. In our opinion, we agree with Lessig about UGC platforms because just like TikTok creating an open-source entertainment and space for creativity from various situational factors, it reflects an outspoken, bold and confident society, just as the upcoming generation is shaping up to be.

UGC is what gives the power to social media personalities, by enhancing their system of ratings or amount of shares across the web which results in upward mobility within society. Although UGC is an opportunity for everyone to showcase their creativity, the people who are already well known will always have a slight advantage of viewers being more responsive and reactive. In his paper, Van Dijck (2009) describes the manifestation of the intermediary function of UGC sites, as it bridges aspiring amateurs and commercial content firms through one platform. Social network platforms mediate user activity and engagement by high-tech algorithms and data mining. There is present literature that makes it seem obvious that we need more than singular disciplinary theories to gain understanding regarding the complex relationships between social and technological agents.

From the research of Susarla and Tan (2012), it was found that the usability and functionality of an online platform like YouTube, make it easy for users to create their own channel and UGC that can be shared almost instantaneously to a wide audience across the world, similarly, we would like to come up with conclusions for the mentioned platform, TikTok. Susarla and Tan (2012) discuss that there is a dual nature of how a user participates and how opinion is formed with regards to content creation and in contrast to the previous online communities that did not enable rich features of interaction. Just like YouTube, there are informal monitoring and reputation mechanisms used in UGC sites which lead to a self-regulating dynamic of social interaction on UGC platforms.

2.4 Gamification

Gamification, until recently, has been viewed as the act of including systemic game elements into services (Salen & Zimmerman, 2004). According to Huotari and Hamari (2012), "a game is a system in which players engage in an artificial conflict that is defined by rules such that it results in a quantifiable outcome". The term "gamification" is reported to have been first used in a 2008 blog post by Brett Terrill, where he described gamification as 'taking game mechanics and applying them to other web properties to increase engagement' (Huotari & Hamari, 2012). Deterding et al. (2011) have been a strong proponent of describing gamification as the use of game design elements in non-game contexts. These authors strongly stand by their view that the systems of affordances that are imbibed in gamification ought to be the same as used in games irrespective of the outcomes. Gamification is predicted to be the next-generation technique for marketing and customer engagement (Zichermann & Cunningham, 2011). It was predicted by Gartner (2011) that

by the end of the year 2015, over 50% of organizations that are engaged in managing innovation processes will apply gamification to most of their operations. While there are predictions about the future successes of gamification, there are also predictions about the failures of it (Gartner, 2012).

By the end of their study, Huotari and Hamari (2012) settled on defining gamification as a process of enhancing a service with affordances for gameful experiences in order to support the user's overall value creation. In contrast to previous definitions by other authors, which placed emphasis on the notion that gamification is based on the use of game elements, Huotari and Hamari disputed that gamification exists by simply applying game mechanics to non-game services. The authors argue that there are currently no clearly defined set of game elements that can only be identified as strictly unique to games. They also add that it is worthy to note that such elements do not guarantee the creation of gameful experiences. Consequently, the authors argue that, instead of basing the definition of gamification on a set of methods or mechanics, the definition of gamification must be understood largely as a process where the sender attempts to increase the tendency for gameful experiences through instilling the service with affordances for such intention. As a disclaimer, the authors denounced that the intention to create a gameful experience does not necessarily imply that the process of gamification would have to be successful.

In addition to the holistic definition offered, the authors suggest that, as a key requirement, in order to create a gameful experience, participants of service must have the opportunity to voluntarily participate as a result of them being drawn by their intrinsic motivation. In this regard, should this voluntary part of a gamified service be eliminated such that the participants are controlled in a way that their free choice is eliminated, the service is devoid of the core of a gameful experience.

According to the authors, there are four main providers of gamification. These they stated to be: the core service provider, a third-party service provider, the customer him/herself, and another customer.

In their paper, Hamari et al. (2014) concluded that indeed gamification works, although its efficiency is not without any caveats. They add that the context of the service is an essential antecedent for gamification. The authors also suggested that user qualities have an effect on behaviors toward gamification thus, explaining why in certain environments, gamification may have had significant effects only on certain users while in other environments, the same effects may not be observed. Additionally, it was found out that external pressure such as extrinsic reward undermines the intrinsic motivations and as a result, undermines gamification.

Many current applications of gamification imply a reward-based system that aims to motivate potential or current users to encourage progress and competition. A motivational factor is the comparison of individual performance against peers' acts as resulting in increased system usage and attitudinal intention to use (Jipa & Marin, 2014). Gamification could be also used to create a

21

comparison between choices, decision making, the relativity of anchor points, and memory effect as a decision influencer for fulfilling specific action in the decision process (Ariely, 2008).

To further the discussion, Moise and Cruceru (2014) outlined how gamification can be applied to events marketing in order to increase the participation of attendees and to achieve the intended outcome of an event. They suggest that by fusing events and gamification both audience and players are connected while the loyalty of both parties is increased through empowering the parties to adopt the conduct of the organization.

The authors explained that an easier and efficient approach of applying gamification is via the use of the internet with particular focus on social media networks. Although in their research, they acknowledge the gap in knowledge about the various kinds of users who engage in playing games on social media platforms (Moise & Cruceru, 2014).

Gamification's main aims are found to be in alignment with three major marketing concepts: engagement, brand loyalty, and brand awareness (Lucassen & Jansen, 2014). In comprehensive research, Lucassen and Jansen (2014) through interviewing marketing executives discovered that the concept of gamification is on the rise in marketing and is expected to be increasingly adopted in the business field in the near future. It was generally agreed, however, that gamification should not be perceived as the end goal in itself but rather, a means to achieving the goal of marketing. As reported by the authors, many of the interviewed marketing executives had one objective in common, to increase engagement through gamification. They also acknowledged the need to conduct further studies to understand the impact of gamification on marketing campaigns (Lucassen & Jansen, 2014).

Koivisto and Hamari (2014) state that, in gamifying a service, it is necessary to integrate social features in the service so as to ensure sustainable and engaging gamification of the service. They explain that the main difference between games and gamification is that the latter is most often used to advance goals outside the game. An example could be to support healthier lifestyles, greener consumption, or improve financial literacy. According to their research, in a gamified service, females respond more positively to social activities, thus it will be useful to include more social activities in a gamified service if it aims at attracting more females. This is also because women are noted to benefit greatly from the social benefits of gamified services. The authors also suggested that, for a longer-term benefit of gamification, users would have to be introduced to it at an early age. This notion is partly supported by Venkatesh et al. (2003) who found out that the rate of technology adoption among the younger generation is higher than among the older generation. According to these authors, gamification may also have some newness significance which makes service more attractive in its early days while in its later days, such perception diminishes with time. This reveals the understanding that, the younger the user, the stronger the novelty. There is however, little known about the perceptions of inactive users.

Hamari (2017) also commented on the increasing popularity of including game designs to non-gamified services. The application of gamification has been connected to increased user engagement, service profitability, goal commitment, and the overall improvement in behavioral outcomes. In his study of the factors influencing the usage of augmented reality games such as Pokemon Go, he discovered the positive correlation its usage has with features that comprise gamification. After it was launched in 2016, Pokemon Go had over 500 million downloads (Hamari, 2017).

Regarding trendiness, in spite of the fact it may play a strong role in the initial adoption of LBGs/ARGs, there is no association linked to its continuous use. According to the author, this explains why the popularity of Pokémon Go may have dwindled after its initial popularity. The findings also concluded that users who in addition to already stated gratifications, derive increased motivation from the competition and socializing related features of the service, were more likely to pay for in-game content in LBGs/ARGs.

By studying the effects of badges as a main mode of gamification, which was applied to a trading service, users were more likely to engage the service having an initiative (Hamari, 2017). The research thus shows that, listing their goods for trade, commenting on other listings, and completing transactions. His research results indicated that gamified conditions increased the likelihood of users to post-trade proposals, carry out transactions, comment on proposals and generally use the service in a more active way. According to the author, further explanations could be that, by using badges, the goals become clear to the users, thus making it easier to understand how to use the service. Relating to the social comparison theory, the author states that badges were found to have a significant effect on usage since earned badges are displayed publicly, users are encouraged to participate more. This is effective because people are more likely to engage in activities that they see others engaging in.

The gap we aim to narrow is how to use the elements of gamification to impact online interaction and sharing behavior on social network platforms, and what underlying benefits the platform provides. How do the users accept and use the platform, and to what degree the user believes that being part of the platform would enhance their performance?

23

3. Theoretical Framework

In this section, we aim to investigate if and how gamification elements mediated by hedonic and social motivations can positively urge the user to interact more with the UGC. The utilitarian motivation was eliminated. Moreover, challenge and reward are chosen to reflect gamification which is being tested as an indirect effect on the willingness to interact. Furthermore, demographic characteristics such as age and gender will be recorded. Below, we explain both our choice for the dependent variable and the model we are proposing to study the relationship between this variable and the independent variables.

3.1 Willingness to interact among platform end-users

As noted by Muntean (2011), the main goal of marketing which is engagement aligns so much with gamification. Lucassen and Jansen (2014) add that, in many cases, the mere invitation for participants or just a thought to interact in an experience, excites the participants even when they do not actively participate. They add that, in contrast to the traditional advertisement, gamifying an experience requires close collaboration and it significantly raises the dedicated time participants put in engaging a platform. It is therefore the increase in engagement through positive interactions that forms a key aspect of the purpose of gamification. In-game designs as in platform designs, Huotari and Hamari (2012) explain that both the developer and the user have active roles in the creation of the platform. The role of the users is, therefore, their usage of the platform as well as the interaction that takes place between them. Thus, the users' voluntary commitment and participation in engaging with the platform serve as a foundation for the platform's usefulness. The platform should, therefore, be designed such that it provides a hedonic, dynamic and suspenseful experience for the players. Vargo and Lusch (2004) add that users of a platform are the value creators for the platform, thus, the platform creator must at least ensure that the platform features provide affordances that enhance interaction. Interactivity with a gamified online environment is therefore perceived as an important feature in social network platforms.

Figure 1 presents the proposed model for studying this dependent variable. We refer to this model as the conceptual model for willingness to interact via hedonic and social motivations. This was inspired by TAM but inspecting deeper meanings of the main motivational drivers when it comes to having a gamified and UGC platform like TikTok. By combining the theoretical foundations of TAM and other literature involving theories of motivation and gamification incentives for participation. Cerutti (2017) has identified predictors, two for each kind of motivation: Usefulness, Easy-to-use, Enjoyment, Playfulness, Recognition, and Social Influence. The six different independent variables were tested against the association with the intentions to use and WOM. However, in this study, we are also investigating gamification as a motive. Thus we decided to eliminate the utilitarian motivation from our empirical research due to the fact that earlier gamification literature reviews, such as Hamari et al. (2014), provided a detailed utilitarian

perspective on the gamification phenomenon (Baptista & Oliveira, 2019). Therefore we would like to test the relationship of gamification with the willingness to interact on this digital platform, by using only hedonic and social motivations as mediating variables as well as to satisfy the effect of gamification on willingness to interact via other established motivational drivers.

Additionally, the possible existence of utilitarian motives seems fundamental to many platforms. Previous research such as Luarn and Lin (2005) through testing intention to use and intention to WOM, have provided strong evidence for the correlation with utilitarian factors. In a study by Kim et al. (2010) for instance, it was established that the strongest predictors to the usage of mobile payment platforms are perceived ease of use and perceived usefulness. The authors explained that their findings proved that even early adopters placed a higher value on usability as their main attracting factor. In this regard, our aim is to fill the gap with new insights that cover a subject that has received limited focus.

Consequently, replacing utilitarian motives with gamification factors will not only introduce an innovative approach to testing the relationship to the willingness to interact but also will feature more applicable and relevant factors to the study as well as the direction of new marketing concepts. Hamari et al. (2018) emphasize that users with higher proving-orientation mostly perceive gamification and social networking design classes as more important. Building on this, gamification factors will prove more relevant for this study.

Understanding the key factors behind motivation as well as including gamification factors representing intrinsic motives and the significant relationships to the willingness to interact is important for practitioners. As one has to implement and keep refining gamified characteristics, social platforms, and businesses around that model that reinforce engagement (Baptista & Oliveira, 2019). By combining the TAM and the theory from Gamification effectiveness developed by Jipa and Marin (2014) we would like to modify the framework in order to evaluate the relationship between rewards, challenges, and motivation to engage with TikTok.

As previously stated, our proposed model the motivation defined by utilitarian elements are being replaced by two elements of gamification. Gamification is considered capable of providing both benefits since it attempts to motivate the user in obtaining utilitarian outcomes while invoking hedonic and social aspects, intrinsically motivated (Hamari & Koivisto, 2015). As utilitarian motives touch upon the fulfillment of goals and we think that previous literature has extensively researched the self, attitude and behavioral intention towards new systems or in this case new entry social network platforms (Cerutti, 2017).

3.2 Gamification Elements in Digital Platform

Denoted opinions by Kohn (1999) evaluate the extrinsic motivation as rewards, and that they do not provide long term engagement and could discourage actual system usage. The TAM gamified model proposed in Jipa and Marin (2014) shows that gamification effect will influence the Behavioral Intention to use (BI), hence increasing the actual system use. The authors focus on the expected benefits of applying TAM and gamification to achieve a business goal. Other studies (Amir & Ralph, 2014) propose gamification effectiveness but gamification as a motivation variable has not been mentioned. At times, gamification can support user-driven innovation and is used for gathering knowledge for enterprises.

Gamification mainly treats two types of motivations which are, extrinsic and intrinsic motivations. Deci and Ryan (2000), in the theory of planned behavior, talk about the fact that gamification elements such as rewards and challenges serve as informational feedback creating a sense of motivation and competence within the user (Nacke & Deterding, 2017). There needs to be more focus on the elements that can drive both intrinsic and extrinsic motivation, and encourage an interaction loop between the users (Ruengaramrut, 2019).

To implement gamification, practitioners commonly apply gaming-related principles to create more enjoyable experiences, which are expected to uplift community usage, stickiness, and positive evaluations (Leclercq et al. 2020). According to Hamari and Koivisto (2015), gamification attempts to promote intrinsic motivations toward various activities. Gathered data results suggest that the relationship between utilitarian benefits and use is mediated by the attitude toward the use of gamification, while hedonic aspects have a direct positive relationship with users. Social factors are strongly associated with attitude but show only a further weak association with the intention to continue the use of a gamification service. Gamification has been implemented in a variety of contexts so far, such as e-learning, overall wellbeing, and consumer behavior. This dimensional socio-technological phenomenon has the potential to provide several benefits such as enjoyment as well as social benefits through online communities and social interaction (Hamari & Koivisto, 2015).

Juul (2003) describes how games are designed, games are composed of numerous interacting sets of mechanisms referred to as systemic condition, and an experiential component which always require the active participation of at least one player. These conditions give rise to rules, conflicting goals, and uncertain outcomes. As a form of reward in gamified platforms, badges can be used to entice users to continuously engage with the platform. Hamari (2013) adds that badges are used to influence users to participate in performing common tasks and actions in a platform.

According to the self-determination theory, which is a constituent of the human motivation concept, intrinsic motivation is the core influence associated with both sports and gambling (Ryan & Deci, 2000). Aparicio et al. (2013) explain that intrinsically motivated activities refer to the set of activities or engagements that users or participants find truly interesting and are willing to participate without any cohesion or conditioning. The pleasure of participating in such an activity in itself serves as a reward to the participants. Both rewards and challenges go hand in hand. In the case of challenge, Lucassen and Jansen (2014) provide that, the presence of competition makes the participants oblivious of the unknown amount of effort needed to achieve certain goals and this rather incites further curiosity among the participants and further enhances interaction. They add that experiences such as scarcity, time constraints, and limited resources all comprise features that incite users to be more active.

To suit our study, we focus on two of its major features: reward and challenge. These will be the key independent variables that we will be utilizing by examining the relationship between gamification and willingness to interact with platform end-users through hedonic and social motivations.

3.3 Reward in Gamification

3.3.1 Effect of Reward through Enjoyment

Rewards have the power to potentially increase participation and motivation from doing a task over and over again (Antin, 2012; Miller & Mynatt, 2013) and as Shwartz revealed that rewards elicit a stereotypical or repetitive way of doing things, this means that the feeling of having an incentive tends to reflect the enjoyment of doing an activity, especially if it is done repeatedly (Kohn, 1999). Hamari and Koivisto (2015) proved that enjoyment is positively associated with continued use, the exposure of one single TikTok content can be the start of continuous viewing or interacting cycle. The willingness to interact has the potential to increase if there is a feeling of enjoyment initiated by the rewards motivation. As much as rewards can lead to enjoyment, Kohn (1999) says that witnessing other users get a reward for engaging in some activity can have a temporary demotivating effect. Another reconciliation associated with the use of rewards is that it can be seen as diminishing the autonomy and users will tend to avoid those situations. Therefore the willingness to interact will also diminish if the enjoyment element is demeaned by the lack of autonomy that reward brings along.

The behavioral intention has an effect on the joy of the experience, an activity having more stimulation, behavioral confirmation of self, status and self-improvement for the individual, the more it is experienced as enjoyable resulting in a stronger will to continue interacting with the

platform even without any external reward (Lindenberg, 2001). This shows the fragility of the effect of the rewarding feeling and how easy it is for the motivation to be overshadowed by enjoyment as a common hedonic motivation (Hamari & Koivisto, 2015). Moreover, hedonic systems involved in game-like systems, in contrast to rewards, aim to encourage an autonomous experience, competence, and relatedness to the activity which emerges from the SDT (Deci & Ryan, 2000), in our case, it is the interaction with the TikTok platform as a source of enjoyment. SDT suggests that individual motivation to engage in a task can be located within a range of different grades of internalization which is the user's perception of an enjoyable task by itself.

Behavior is mainly motivated by extrinsic motivations, such as financial incentives or material rewards for engaging in an activity that requires some form of effort. However intrinsic motivations, such as enjoyment are still acting as secondary influences (Hamari & Koivisto, 2015). The enjoyment derived from the behavior is thought to be sufficient to provoke interaction, and eventually, create the ultimate experience and sustain a long-lasting will to interact. Furthermore, it is expected that if the platform is perceived as enjoyable, then the attitude towards the platform is likely to be positive. A positive relationship between enjoyment and attitude has already been found in hedonically oriented activities such as mobile games (Hamari & Koivisto, 2015). This can predict that if TikTok users feel that reward can increase the enjoyment level, the relationship between reward motivation and willingness to interact will be positive. Based on the above, we formulate the following hypothesis:

H1a: Reward is positively related to the willingness to interact with platform end-users via enjoyment

3.3.2 Effect of Reward through Playfulness

The term playfulness refers to explorative and creative behavior when interacting with a system, which in our case we treat as the two-sided platform. Playful interactions have also been considered to promote creative and exploratory behavior, which no doubt have a positive impact on learning abilities (Hamari & Koivisto, 2015), but in this regard, the rewards motive is mediated via the playfulness and its hedonic nature, so the creativity aspect tends to be diminished as there is a controlling effect of extrinsic motivation.

From Hamari and Koivisto's (2015) study it was shown that out of other tested hedonic predictors, perceived playfulness did not significantly predict either of the dependent variables directly, only having a weak significant association with continued use when it was mediated by attitude. This finding was confirmed by Cerutti (2017) in his study which showed that playfulness is insignificant to WOM and not associated with intention to use.

In Cerutti (2017) playfulness is defined as "the tendency to interact spontaneously, inventively, and imaginatively" with a system. Playfulness is said to have an important role within the

28

gamification elements as it enables the implementation of an original and creative approach to the task, therefore in TikTok and such interactive platforms having the opportunity of UGC reflects this approach. Nevertheless, playful elements suggested by rewards have been found to be rather a distraction from the related activities, it is probable that rewards via playfulness can negatively affect the willingness to interact with the platform (Filsecker & Hickey, 2014). Namely rewards as a method of play interaction and the associated incentives may undermine users' intrinsic motivation and interest in the platform's activities, if the focus is emphasized on the acquisition of incentives then the element of play is destructed by losing interest in the creation of material itself (Filsecker & Hickey, 2014).

Flow theory suggests that involvement in a playful experience is self-motivating, meaning it is more related to intrinsic motivation than extrinsic motivation (Schöbel & Söllner, 2016). Flow and playfulness in comparison to enjoyment, represent a hedonic experience of playing games in general (Hamari & Keronen, 2017). Hamari and Keronen (2017) confirmed that the correlation between playing intention and playfulness was weaker than enjoyment, although still significant. We tend to presume that rewards via enjoyment have a stronger correlation to the willingness to interact than via playfulness. One reason is that TikTok has different gamified mechanics than other platforms, concerning education or video games. The playfulness is more associated with creativity and originality than competitiveness, which leads to our expectation that rewards with the use of playful attributes are significant to the increased interactivity. This leads to our next hypothesis:

H2a: Reward is positively related to the willingness to interact with platform end-users via playfulness

3.3.3 Effect of Reward through Recognition

We identified that one of the most important factors is to be accepted and recognized by your peers and society when it comes to being part of a platform like TikTok, providing so many social benefits transcending from the social currency it places upon users. Ryan and Deci (2000) talk about having the need for fulfillment as well as requiring a supportive environment, as this helps the process of fulfilling one's needs where the individual becomes recognized and accepted. Users feel recognized through the content they intend to share on the platform and if they are accepted within the desired social network through actions and media which is appreciated and enjoyed by others. We hypothesize that implementing rewards upon an entertainment platform like TikTok has the potential to impact recognition that the user strives to have which, thereafter, transmits to a higher interest to interact more often. Through social recognition, the willingness to interact can be either diffused or strengthened depending on the social response one receives.

Receiving recognition from other users and also acknowledgment from different social media platforms can create a form of reciprocal behavior. The reciprocal interaction promotes the social

29

usefulness of the platform and the possibility of receiving a benefit or reward and, in turn, contributing to the social platform by creating and sharing content (Hamari & Koivisto, 2015).

Hamari and Koivisto (2015) describe the positive relationship between receiving recognition and perceived reciprocal benefits coming from adopting a system. This shows that as we hypothesize that rewards, acting as reciprocal benefits are expected to be positively related to willingness to interact, with the effect of recognition, we can see that increased recognition can lead to improved platform interaction and adoption. On a digital platform, the overall attitude of the user is expected to be mediated by social factors, namely recognition, and social influence, however, an interesting fact is that Hamari and Koivisto (2015) also included reciprocal benefits. The rewards can be a way of gaining and maintaining recognition on the platform. The more users a person is exposed to, the more recognition and reciprocal benefits he or she is likely to be exposed to. The exposure on the platform is partially mediated through social influence via recognition and perhaps reciprocal benefits (Hamari & Koivisto, 2015).

By using the extrinsic element of gamification, the reward is a way of optimizing recognition across social media networks and spreading awareness of the business. An interesting outcome that Cerutti (2017) points out in his results is that recognition is neither positively associated with intention to use nor with the intention to WOM, this is relevant because if there is no effect on the intention to use or make a platform go viral then probably there is a low intention to interact with TikTok. But we keep in mind that this entertainment platform of users being in control of what they see and want to see gives the power to interaction through the recognition by the respective users, both active and inactive engagers. Therefore we propose the following hypotheses:

H3a: Reward is positively related to the willingness to interact with platform end-users via recognition

3.3.4 Effect of Reward through Social Influence

Social influence is the extent to which users perceive the input of what others believe, family, and friends will be the first group users seek a recommendation on whether to start using a new app or become part of a platform. The social influence processes reflect the impacts of subjective norm, voluntariness, and image, these are imposed on an individual facing the opportunity to adopt or reject a new system (Venkatesh & Davis, 2000). Previous studies have found that the more friends a user has on the platform, the greater the adoption of the platform is expected to be. Assuming that the more views one has, the more interaction there will be (Hamari & Koivisto, 2015). It all depends on the social currency of being rewarded by attracting new users to the platform or being able to relate to others in a creative way. Furthermore, our empirical study provides a new understanding of how gamification is combined with the phenomenon of social influence and helps us understand the adoption and willingness to interact with TikTok.

Online users get familiarized with a new platform quickly through word-of-mouth or recommendations by their peers, with the use of mentions, hashtags, shares, and comments they come across on diverse platforms. Reward has the potential to act as a motive and create a sense of competition as well as enhance personal development. Previously mentioned motivational theories, such as Theories of Reasoned Action (TRA) (Fishbein & Ajzen, 1975) and planned behavior (TPB) (Ajzen, 1991) provided traditional measurement of social influence, which we will be employing to gather our empirical data. Another theory that interrelates is the social proof theory, which portrays that in some instances users are unaware that they end up imitating other users and letting others control their behavior (Cialdini, 2001). Once the online user is affected by the social influence and has potentially retrieved positive reactions from the social media community, this leads to increased satisfaction, increased gratification for complying with the norms that the social media platform shares. Social influence includes an affective experience derived from gaining recognition from the social circle. The social dimension is heavily utilized as the motivation of the users in gamification settings, especially when it comes to social media platforms where the content and virality are mostly controlled by society itself.

Furthermore, since TikTok is a platform incorporating social interaction, referring to "liking" and commenting, and we hypothesize that a combination of these artifacts will motivate a user to interact more, and we set to find out whether by improving the gamification role and introducing rewards and rewarding elements, this can be even more effective. Platforms like TikTok are making it possible to see instant reactions, and recognize users' participation and content by friends and other users and possibly in the future introduce a reward system. Users' actions are typically affected by social influences, followed by beliefs that are imposed by what we see on social media because how other people act becomes the accepted norm. The exposure gained from the platform is partially mediated through social influence to recognition and further reciprocal benefits.

H4a: Reward is positively related to the willingness to interact with platform end-users via Social influence

3.4 Challenge in Gamification

3.4.1 Effect of Challenge through Enjoyment

Enjoyment of the game is noted as one of the important features that attract users. In their study, Hamari and Keronen (2017) provide evidence that suggests that enjoyment of a game is a significant part of ARG and additionally, has a positive impact on how the users engage with the game. This is a feature that is common with many digital games. Study shows that game players

or users of a gamified platform derive enjoyment the more the game is challenging. Molen and Jongbloed (2007) suggest that, in the context of free web-based games, the existence of challenge serves as a leading motivation for game players. In terms of gratification, Huang and Hsieh (2011) state that challenge serves as one of the key gratifications that influence users' loyalty to online games. Other studies that have concentrated on school-going children have identified competition, which is also another form of challenge, as a significant source of gratification for playing games (Funk et al. 2006). The relationship between challenge and enjoyment is well evident in numerous cases. Vorderer et al. (2003) also found that, in digital games, the player's subsequent use or engagement in the game was highly dependent on the extent of competition they are presented with during the game. In a study conducted by Hamari (2015), the author stated that when players engage in gaming, their propensity to purchase in-app or in-game content is largely based on the enjoyment they derive in playing. The author explains that the effect of this is experienced when game developers deliberately raise the difficulty level in a game such that, players would have to strive harder to attain those levels. When players experience such difficulties, they end up being willing to pay for in-app content since that increases their chance of overcoming the difficulty levels. Thus, Hamari (2015) suggests that this is the idea behind premium products. A typical example is how active players of Pokemon Go explained how competition serves as their key motivators for spending on getting additional access to the game. The more competitive the player, the greater the possibility that they are willing to spend. The use of badges as a form of goals also presents a kind of challenge to users and consequently, increases users' performance by ensuring that completion of goals leads to increased enjoyment and satisfaction (Bandura, 1993). Witt, Scheiner, and Robra-Bissantz (2011) add that players of a game or users of a platform experience flow when they engage in activities they enjoy and through that, become immersed in such activity.

The social network platform, TikTok provides users the opportunity to be challenged by other users to participate in several activities. For instance, the viral meme of the dancing pallbearers evolved as a result of other users creating several videos of such content (Illevbare, 2020). The extent of enjoyment that users are literally assured of when they participate in such challenges further entices them to participate (Anderson, 2020). This is especially useful given the shutdown of Vine, which many users found to be entertaining. TikTok now serves a similar purpose and perhaps, more to its users. Whether it is a game or a social network, gamifying a platform is expected to provide some satisfaction and enjoyment to its users when there are varying levels of challenge incorporated. Thus, we establish our hypothesis:

H1b: Challenges is positively related to the willingness to interact with platform end-users via enjoyment

32

3.4.2 Effect of Challenge through Playfulness

According to Glynn and Webster (1992), playfulness relates to a set of psychological traits that include cognitive spontaneity and creativity. They provide that unlike other psychological constructs, playfulness has a positive relation to work outcomes such as performance and serves as a stronger predictor for efficacy. Barnett (2007) adds that people who are playful are found to have the unique ability to transform almost any environment to become increasingly stimulating, enjoyable, and entertaining. The author states that a playful person among others, can be characterized as; gregarious, uninhibited, comedic and dynamic, and these qualities are easily observed in children than in adults.

Sledianowski and Kulviwat (2009) in their study of factors that influence users' adoption of social network sites such as MySpace and Facebook, discovered that there is a strong positive relationship between perceived playfulness and the intent to use and actual usage of a social network site. Similarly, in a study by Ahn and Han (2007), it was found that playfulness has a significant impact on enhancing user attitude and behavioral intention to use an online retailing website. As a result, the users were more likely to interact with a retail website the more its features inculcates playfulness. In the workplace, it was found that workers who have higher ratings in cognitive playfulness were likely to have higher test performance than those who had lower cognitive outcomes in playfulness (Martocchio & Webster, 1992). In Lin et al. (2005), the authors in studying the factors that impact the continued use of a website found that perceived playfulness played a role in the users' intent to reuse a website. Through their study, they found that playfulness is of high value as a constituent of expectation-confirmation theory.

When it comes to social network platforms such as games, it has been found that challenge serves as one of the significant motivations that influence user's intention to play or participate on the platform (Lucas & Sherry, 2004; Sherry et al. 2006). Jarvinen (2009) suggests that playful qualities of spontaneity, sociability, symbolic physicality, narrativity, and asynchronicity are features that when a game contains, renders it promising to users or players. The author adds that it is a part of a developer's responsibility to include these features in a social network platform such that users can respond positively to these playful activities. Additionally, these design features create competition, challenge and tension in social network platforms that aim at enhancing interaction.

As a social network platform and an avenue for creativity and experimentation, that replaced several other predecessor platforms, TikTok is seen as closer to Vine than Instagram, Facebook, and Twitter (Anderson, 2020). The author further explains how TikTok is perceived as a playground that grants young people the freedom to play without needing to conform to restrictive rules. Through some of its unique features such as the challenge of adding a soundtrack to every video, and also the encouragement for users to create or recreate their own videos either as a new

33

challenge or as a response to a challenge started by another user or influencer, increases the playfulness feature of the platform. Given the seeming impact of the playfulness feature of the platform, we propose this hypothesis:

H2b: Challenge is positively related to the willingness to interact with platform end-users via playfulness.

3.4.3 Effect of Challenge through Recognition

Moise and Cruceru (2014) explain that status refers to the relative position of a person in relation to his or her peers or other people within a social setting. This style of comparison is seen to be more effective in games through the usage of badges which give recognition to players. The authors explain that in the case of events, gamification can be applied by allocating the best seats at the front rows or backstage to certain individuals so as to entice others who desire such positions to perform better. As Festinger (1954) explains using the social comparison theory, one major reasoning for gamifying platforms is to harness the persuasive ability that arises from a comparison among users or game players. Markings such as badges and points displays enable users to see each other's progress and desire to do more so that they may gain such recognition too.

On Social network platforms such as TikTok, as a result of its algorithm, even a user with no followers can share a video that may end up gaining a lot of response when published on other user's feeds (Anderson, 2020). It is no surprise that TikTok is described as the social network that has nothing to do with a user's own social network (Tolentino, 2019). This feature of TikTok has made it relatively easier for video creators to be easily recognized. This recognition goes on to serve as an influence for other users to engage with the platform. For contents that go viral, the platform makes it easy for users to be able to trace the original creator. This further renders the platform more interactive for users. In their research, Hamari and Koivisto (2015) emphasize that the recognition that platform users get for being co-creators serve as strong predictors for the adoption and usage of a gamified platform. In social networks such as TikTok, the challenge that users face to be the most creative and to get recognized goes on to impact the extent to which they interact with a platform. Based on this, we suggest the hypothesis that:

H3b: Challenges is positively related to the willingness to interact with platform end-users via recognition

34

3.4.4 Effect of Challenge through Social Influence

Socializing among platform users or game players has been identified as a strong factor that positively impacts user engagement on platforms (Hamari & Koivisto, 2015). Additionally, it impacts the users' continued usage of the platform. Hou (2011) states that, in a study on Happy Farm, the findings show that when comparing social games to non-social games, it is found that users play social games more frequently. Moreover, social users spent more time playing the games and due to the social interaction features, they tended to engage more with other users. Similar to this, Lucassen and Jansen (2014) state that humans are more likely to actively and seriously participate when they observe their peers participating in an activity. Thus, by applying social mechanisms in social network platforms such as games, the users are granted the opportunity to help each other, developing a feeling of belongingness, distinguishing them from their peers and granting some users control over others, consequently causing users to be able to exert an influence over other users on the platform. Sundar and Limperos (2013) indicate that trendiness is also a significant part of the influence exerted on new-media applications and systems and this also includes social media and more applications. This implies, as the authors explain, that the new technology usage perception among acquaintances and other users strongly influences a person's decision to use and adopt the new technology. Lee and Cho (2017) add that if the users regard the new technology as trendy, they will consider it fashionable and be induced to use it as a way of maintaining their social image. Hamari and Malik (2018) state that trendiness is a major factor in early technology adoption. Cialdini (2001) identifies this phenomenon as social proof theory, where individuals are more likely to participate in behaviors that they perceive others, especially where friends and acquaintances have an established presence.

In TikTok, users are able to socialize with others and also allow users' activity to be influenced by that of their peers. Anderson (2020) states that video creation and sharing has increasingly become popular and trendy. With regards to TikTok, its meme challenges and content transcend and end up not only becoming trends on TikTok but also on other social media platforms such as Facebook and Instagram. The TikTok platform has a "use this sound" option which allows other users to use a particular sound to create their own video with it and users can also save the sound for future use (Anderson, 2020). The platform also makes use of hashtags to allow users to access the content of a particular nature. Through the "discover" tab and clickable links of hashtags, users can access videos and contents that relate to certain hashtags. The nature of challenges that are shared on the platform often goes viral because of the enticement for users to participate. Many of its content originates from users' recreation of original content and as such, a popular original video may have multiple or other similar videos attached to it. Features of this nature on social network platforms activate the power of social influence that users have on each other. This leads to our hypothesis:

H4b: Challenges is positively related to the willingness to interact with platform end-users via

Social influence

Figure 1:Conceptual model
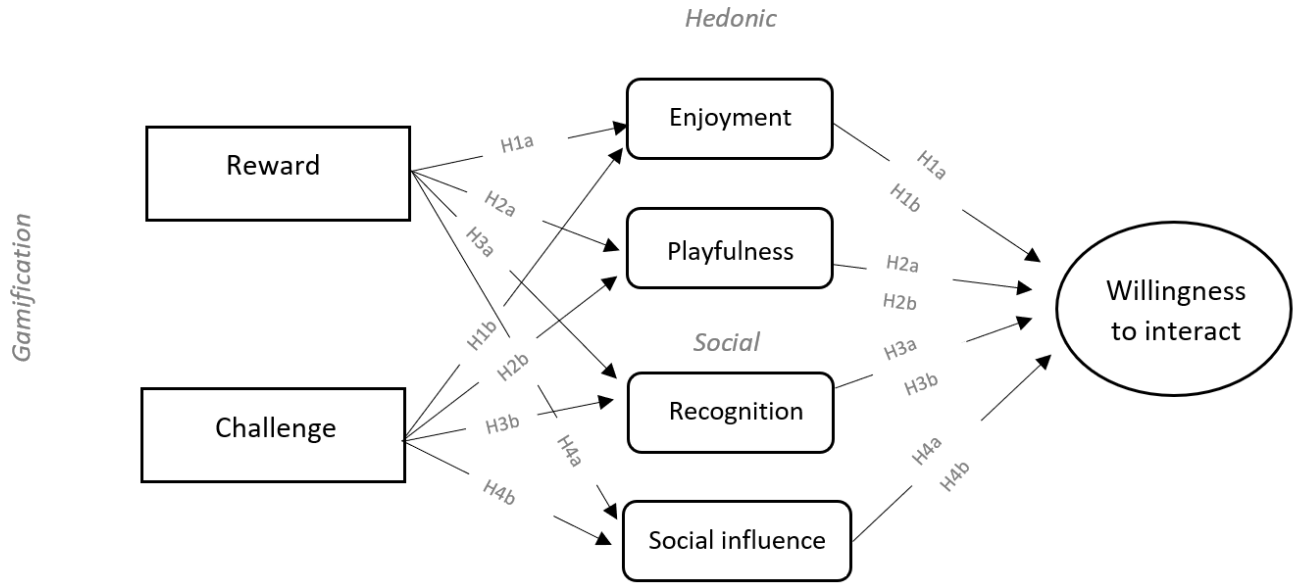
4. Methodology

In this section, we will discuss the choice and selection of our target group and our approach and method of the data collection. In addition, we will discuss our sampling process, the sample size, and our choice of analytical methods and the philosophy of our research. The choice of analysis will give a background to how we approach our analysis and measurement and scaling will also provide information about our questionnaire design.

4.1 Target group, Sampling process, and sampling size

For the purpose of our research, we targeted the population of young people, both males, and females between the ages of 18 and 34 inclusive, who are active on social media. Our definition of active implies someone who is familiar with social media platforms and is aware of the platform, TikTok. TikTok's users between the ages of 16 and 24 constitute 4 percent of its total users with the majority of the users distributed between India, China, and the United States (Mohsin, 2020). Although many TikTok users fall below the legal age of 18, we could not include them among our target group due to ethical reasons. To include persons below the age of 18 in our target group, we would need to seek parental consent (FRA, 2014). Due to time constraints and inability to reach these targets as a result of geographic restrictions and the pandemic, including persons below 18 is not practical within the time frame for the research. Nonetheless, by extending the age bracket to 34 instead of 24, we are able to make up for those below 18 who are eliminated from the target group. Also, even though there is considerable usage of TikTok among adults above 34 as well, the extent of activeness of the younger generations is comparatively higher and also users below 34 make up about 50 percent of the total users of TikTok (Omnicore Agency, 2020).

With regards to the sampling technique it is very important to ensure that the sample to be studied will be representative of the population (Burns & Burns, 2008). In our study, we made use of convenience sampling, a type of non-probability sampling where participants are selected based on convenience and accessibility. Convenience sampling is less complicated, a good approach to use when faced with limited time and resources (Burns & Burns, 2008). The risk with this style of sampling is that the findings risk being biased when the sample respondents are not representative of the population. However, by combining it with Snowball sampling, we are able to reduce the tendency of having unrepresentative samples. Thus, in addition to Convenience sampling, we also utilized Snowball sampling for our study. Snowball sampling is where participants or respondents to a survey recommend other persons who they know fall within the target group (Burns & Burns, 2008). In our study, we discovered that persons who are active users of TikTok also have friends

and family they know are active users of the platform. This in addition to the visibility of active users on social media networks, combining both convenience and snowball sampling seem the right approach for our study.

4.2 Data collection

We conducted our data collection through surveys. Surveys are one of the dominant methods used in positivism and are based on the assumption that there exist regular, verifiable patterns in human and organizational behavior (Easterby and Smith). In our study, we made use of Inferential surveys, a type of survey commonly used in marketing to study the relationships between variables and concepts (Easterby-Smith, Thorpe & Jackson, 2015). Given our research studies, the relationship between independent variables and dependent variables based on the hypothesis, using an inferential survey is the appropriate method for the study.

We designed our survey using Qualtrics software (Quraltrics, 2019). Besides its user-friendly interface, as an online platform, it enabled us to distribute our surveys via the internet with much ease. To use extra features of the software, researchers would need to pay for a premium service that comes at an extra cost. However, even without a premium account, Qualtrics allows researchers to create, collaborate, and share surveys (Qualtrics, 2019). In addition, Qualtrics makes available researchers tools that allow for monitoring of the progress of the survey and preliminary reports as may be needed and it also allows for the generation of reports directly to other software such as Excel and SPSS (Qualtrics, 2019). Despite the downside of having disrupted responses, using web-based surveys is relatively cost-effective, often takes less time, and makes it easy to reach a wider target (Easterby-Smith, Thorpe & Jackson, 2015).

The survey contained a control question which asked respondents if they were familiar with TikTok. Also, respondents had to provide information regarding whether they had the application downloaded on their mobile devices. Respondents who answered that they were not familiar with TikTok were unable to proceed to answer the remaining questions as they would not be aware of the characteristics that make up the app. This was instituted to ensure that only people who were familiar with the platform participated in the survey. Demographic data of respondents including age and gender were also collected. Considering that, the platform is a mobile application used on mobile devices, the usage of mobile devices was also sufficient as a requirement. In all, there were five (5) pages for the survey with twelve (12) questions in all with each variable having a sum of four (4) questions in each. Besides reaching out to individuals, we also shared our surveys via Facebook and LinkedIn. Our data collection period lasted from May 2, 2020, to May 14, 2020. By the end of the survey, we had 281 responses.

4.3 Choice of analytical methods

Based on our subject of study, we are using the quantitative method to analyze the primary data collected via the online survey. To establish the relationship between the independent variables and the dependent variables, we will conduct a Confirmatory Factor Analysis. In addition, we will conduct a reliability test to derive the correctness of the factors and the model fit.

A Structural Equation Modeling and Partial Least Squares will be conducted to analyze the eight (8) hypotheses each of which relates to the individual mediating variables grouped under Enjoyment, Playfulness, Recognition, and Social Influence. The independent variables are Reward and Challenge while the dependent variable is the Willingness to Interact.

4.4 Measurement and scaling

Our theoretical model is tested based on a five-point Likert scale from 1 (strongly agree) to 5 (strongly disagree) was used. Respondents were asked to what extent they agree or disagree with each statement by choosing one of five categories: Strongly Agree; Agree; Neutral/Don't Know; Disagree, and Strongly Disagree. Some attitude scales have more and others less than five categories however the 5-point Likert scale is the most commonly used. Amongst the benefits of using the Likert scale is having greater ease of preparation. The method is based on empirical data regarding the subjects' responses rather than subjective opinions. It produces more similar scales and increases the probability that a unitary attitude is being measured, increasing validity and reliability (Burns & Burns, 2008). By using Likert scales, usually, Cronbach Alpha analysis is applied to measure the internal consistency of the data

We decided to measure two (2) latent constructs in this study; reward and challenge whilst measuring enjoyment, playfulness, recognition, and social influence as mediating variables to measure the effect on the willingness to interact with regards to the user's perception and motivation of the platform, TikTok. Every latent construct was measured on a four-item scale. First, Reward was measured on a modified scale by Van den Berg, Franken and Muris (2010). Challenge items were based on Shu-Hui, Wann-Yih, and Dennison (2018).

Secondly, the mediating variables are used in most academic papers using TAM items with a four-item scale. Hedonic items are adapted from Van der Heijden (2004) for enjoyment and Webster and Martocchio (1992) for playfulness whilst social items; recognition and social influence are based upon Hernandez et al. (2011) and Ajzen (1991) respectively. The dependent

variable/construct, willingness to interact was based on the modified items from the works of Kim and Son (2009) and Venkatesh and Davis (2000).

4.5 Main research variables and items

The research variables used in our model are adapted from different papers treating gamification elements and motivation to use new technology. Firstly the gamification constructs, reward and challenge were referred from recent studies addressing reward and challenge specifically. Reward items were based upon the new scale of reward responsiveness by Van den Berg, Franken and Muris (2010). In addition, we have amended the reward motive to our own need for the study. The construct of the challenge was adapted from the study of Shu-Hui, Wann-Yih, and Dennison (2018).

Secondly, the 4 variables derived from previous TAM model literature/research were adapted to suit the nature/purpose of our study. The variables consist of 4 items each that define the motive that leads to our dependent construct, willingness to interact. Enjoyment was measured using four semantic differential scales which were taken from past enjoyment research (Van der Heijden, 2004). These items were adjusted according to our TikTok research and measured interest, excitement, enjoyment and pleasure. The latter hedonic variable, playfulness was derived from previous studies by Webster and Martocchio (1992) and Cerutti (2017). Playfulness represents an appropriate construct in the study systems interaction. The items aimed to measure motives originating from originality, playfulness, flexibility and creativity.

Thirdly the variables related to social motivations were recognition and social influence which were listed from the works of Hernandez et al. (2011) and Ajzen (1991) respectively. The recognition reflects the motivations coming from noticeability and other users' actions. On the other hand, social influence captures the imposition of motivation by other users.

Finally, the dependent variable of the willingness to interact was compiled by using items from the study of Cerutti (2017) to identify, which aim was to test the motivations leading to the intention to use and intention to WOM of the language learning platform *'Duolingo'*. However, we decided to take this approach as we did not encounter an appropriate scale that could fit our current study. The items we used, all relate to the future and the outcomes of all the motivations mentioned above.

4.6 Philosophy of research

'It is a capital mistake to theorize before one has data. Insensibly one begins to collect facts to suit theories, rather than theories to suit facts.' - Arthur Conan Doyle.

We tend to agree with this quote as data will open many doors of different kinds of explorations one can look further into. The knowledge of philosophy helped us recognize which design works best for our expected study outcomes. One of the main significant points for research philosophy is the reason behind the research. As our research design includes the hypotheses that support the previous research and our current research as well as enhances the strength (Saunders, Lewis & Thornhill, 2007). During our research, research philosophy was one of the main sources for us in understanding in more detail how our research data should be collected, analyzed and used.

In this section, we discuss the philosophical assumptions that underpin our study. Research philosophy has a direct effect on the research design (Easterby-Smith, Thorpe & Jackson, 2015). When it comes to research methodology, Easterby-Smith, Thorpe and Jackson (2015) state that there are a number of reasons researchers must first establish a firm understanding of their research philosophy. Among these, the authors state that research philosophy enables the researcher to refine and clarify the approach for the study and also this helps in the remaining processes such as data collection. Additionally, the authors state that understanding the research philosophy grants the researchers a better perspective about which methodologies to avoid and also how to adjust the study as and when necessary. Two main constructs are to be considered in the philosophy of research: ontology and epistemology (Burns & Burns, 2008).

4.6.1 Ontology as the nature of reality and existence

Reality has many assumptions, some are shown and understood and some are not, ontological assumptions are more about the realities encountered in research about human knowledge, which is partly based on assumptions. These assumptions shape the way we see and study our research objects. With a focus on subjectivist ontology, where the importance of social construction is emphasized, language, processes, and instability of structures and meanings in organizational realities (Saunders, Lewis & Thornhill, 2007).

Bhaskar (1978) argues that we will only be able to understand what is going on in the social world if we understand the social structures that have given rise to the phenomena that we are trying to understand, that is the motivation emerging from gamification and hedonic along with social influences. Ontological assumptions determine the focus of research objects and phenomena and how you see and approach them (Burns & Burns, 2008).

The three (3) positions of ontology that play a role within our research since it is related to social science. Firstly the relativist position, assumes that different observers have different perceptions, as we all think differently (Burn & Burns, 2008). The same experiences are undergone differently by different individual users. Secondly, internal realism positions which suggest that there is a single reality but accepts that scientific reality exists if based on facts and proof, it is the precision of the study that confirms attitudes, motives, and results. Finally, there is the nominalism position that looks at social life as paradoxical and unpredictable and argues that social reality is nothing but the creation of people through language and discussion.

4.6.2 Epistemology

According to Easterby-Smith, Thorpe & Jackson (2015), epistemology is the theoretical perspective of knowledge that enables researchers to understand the best approaches to enquire about the nature of the world. Explaining how social science studies should be conducted, the authors state that epistemology can be divided into positivism and social constructionism. Based on the subject of interest, we adopted a positivism epistemology perspective.

Positivism believes that "the social world exists externally and its properties can be measured through objective methods rather than being inferred subjectively through sensation, reflection or intuition." (Easterby-Smith, Thorpe & Jackson, 2015). By choosing positivism, we are able to establish assumptions based on which we can formulate variables, establish relationships to build our hypothesis.

Consequently, we started our research by first identifying the topic which aims at identifying the motivational drivers of gamification and how that impacts end-users' willingness to interact with a digital platform. To study this relationship, we introduce mediating variables through which we test the impact of the independent variable on the dependent variable.

In accordance with our belief in the positivism approach, and in addition to existing literature, we deduced eight (8) hypotheses each of which connects to at least one of the independent variables and the dependent variable (Willingness to interact). Based on our approach, to arrive at an objective knowledge, we carry out a quantitative method of analyzing our data after online surveys designed on Qualtrics have been used to collect data. We further analyze our data-based using both SmartPLS and SPSS to establish a clear relationship between the variables. As is the aim of positivism, we test our concepts to determine its validity.

5. Results and findings

5.1 SEM PLS and CFA(confirmatory factor analysis)

Our model-testing was conducted using component-based PLS-SEM in SmartPLS 3 (Garson, 2016), SEM (Structural Equation Modeling)- PLS (partial least squares) was selected for this study in order to test all the relationships between the model variables. The main advantage of the PLS-SEM estimation is that it makes no restrictive assumptions about the distributions of the data (Hamari & Koivisto, 2013). By using SmartPLS, we benefited from having the indirect inner model coefficients, results were displayed in a very organized manner, which we could analyze efficiently. PLS-SEM is considered to be robust in handling small sample-sized data, such as ours with 151 entries. The path model obtained from SmartPLS shows that some variables indirectly affect others while still being caused by variables in other hypotheses (Garson, 2016).

The Confirmatory Factor Analysis (CFA) was used in order to confirm the hypothesized model and ensure the model is a good fit to the data. The CFA was also used to identify the relationship between each variable in the model (Ruengaramrut, 2019). CFA enabled us to test the hypothesis and theoretical or causal relationships actually that exist between the observed variables and their underlying latent constructs. In short, CFA assesses measurement theory. Since we ran a CFA with PLS-SEM, this process is sometimes referred to as confirmatory composite analysis (Hair et al. 2017).

5.2 Validity and reliability of constructs

The measurement we considered as most fitting in SmartPLS 3, was the reflective model, as it directs from factor to indicator variables and signifies the measured and representative indicator variables (Garson, 2016). We were able to test the model fit, by looking at three tests, which are; composite reliability, Cronbach's alpha and AVE (average variance extracted) as shown in figure 2. Composite reliability has proven to be slightly more accurate, as Cronbach's alpha undermines the consistency and underestimates the reliability of the outer loadings. The values in figure 5 show that all values are accepted within the limits and the criteria of the 3 tests, as all scores are below the threshold of 0.6.

The test for multicollinearity was also performed and from the output of the VIF inner values, the results show that the highest value indicated in figure 14 does not indicate a collinearity problem, as the figures are well below 10.0 for each variable. Therefore we can conclude that the variables are all independent of each other.

43

Figure 2: Cronbach's alpha, composite reliability, and AVE

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Challenge	0.845	0.892	0.894	0.68
Enjoyment	0.902	0.906	0.932	0.774
Playfulness	0.824	0.828	0.883	0.655
Recognition	0.962	0.964	0.972	0.897
Reward	0.851	0.853	0.9	0.693
Social influence	0.894	0.898	0.926	0.759
Willingness to interact	0.915	0.917	0.94	0.797

5.3 Descriptive statistics

The data collection was gathered via an online survey using Qualtrics as our chosen platform due to its user-friendly layout and efficient transfer of data to SPSS. The survey incorporated the aforementioned variables (figure 7) in the 14 questions with 4 subscales for each question. The survey was accessible for both TikTok users as well as those who do not use TikTok. The questionnaire was launched on 2 May 2020, and all 281 responses were gathered within the next two weeks. However not all 281 responses were valid, as the survey was directed to users familiar with the platform TikTok and only 151 respondents fit the full criteria and were eventually analyzed. The survey was distributed online and the average duration the respondents took to complete the full survey was 6 minutes.

A brief overview of the demographics: the sample is composed of 34.3% male, 64.4% female, and 1.3% other gender groups. Regarding the age range, the dominant group was 18-24 (51.8%) and

the latter group, 25-34 (48.2%). 72.4% were familiar with the platform, TikTok, which means they know of it, they use it or they know how it works. 46.2% of our respondents have the app installed on their mobile devices. Our survey shows that although some people download the app they still do not make use of it often and interact with it very rarely.

5.4 Interpretation of Results

Using SmartPLS, the results of our factor analysis and Consistent PLS bootstrapping is shown below in figure 3. Using Willingness to interact as the dependent variable, a significance of the relationship between the dependent variable and independent variables was tested. The more significant the relationship, the greater the tendency for that variable to influence users' interaction with the platform. This means the variable is a strong motivation for platform user interaction. The less significant the variable, the less its impact on the Willingness to interact among platform end-users. Hypothesis 1a with results (p-value = 0.203, > 0.05) is not supported. Thus, the relationship reward has to Willingness to interact with platform end-users via enjoyment is not significant.

Hypothesis 1b is also not supported. Its result, (p-value=0.476, > 0.05) shows that the relationship between Challenge and Willingness to interact with platform end-users via enjoyment is not significant. Hypothesis 2a has a result (p-value=0.013, < 0.05) is supported. Thus, the relationship between Reward and Willingness to interact with platform end-users via playfulness is significant. Hypothesis 2b has resulted (p-value=0.495, > 0.05) and is not supported, implying the relationship between Challenge and Willingness to interact with platform end-users via playfulness is not significant. The result for Hypothesis 3a indicates (p-value=0.021, <0.05) proving that the relationship between Reward and Willingness to interact with platform end-users via recognition is significant. Thus, hypothesis 3a is supported.

However, Hypothesis H3b showing a result of (p-value=0.242, >0.05) is not supported implying the relationship between Challenge and Willingness to interact with platform end-users via recognition is not significant. Both Hypothesis 4a (results: p-value=0.007, <0.05) and Hypothesis 4b (results: p-value=0.029, <0.05) are supported. Therefore, for H4a, the relationship between Reward and Willingness to interact with platform end-users via Social Influence is significant. Also, for H4b, the relationship between Challenge and Willingness to interact with platform end-users via social influence is significant.

From the analysis, it is observed that, while some variables had a significant relationship with the dependent variable and others had no significant relationship, all variables had a positive relationship with the dependent variable. Hypothesis 4a (Reward is positively related to the willingness to interact with platform end-users via Social influence) had the strongest significant

relationship with a p-value of 0.007. On the other hand, Hypothesis 2b (Challenge is positively related to the willingness to interact with platform end-users via playfulness) has the weakest relationship with the p-value of 0.495.

Figure 3: Hypothesis results

	Supported	p-value
H1a: Reward is positively related to the willingness to interact with platform end-users via enjoyment	No	0.203
H1b: Challenges is positively related to the willingness to interact with platform end-users via enjoyment	No	0.476
H2a: Reward is positively related to the willingness to interact with platform end-users via playfulness	Yes	0.013
H2b: Challenge is positively related to the willingness to interact with platform end-users via playfulness	No	0.495
H3a: Reward is positively related to the willingness to interact with platform end-users via recognition	Yes	0.021
H3b: Challenge is positively related to the willingness to interact with platform end-users via recognition	No	0.242
H4a: Reward is positively related to the willingness to interact with platform end-users via Social influence	Yes	0.007
H4b: Challenge is positively related to the willingness to interact with platform end-users via Social influence	Yes	0.029

46

Figure 4: Path coefficients I
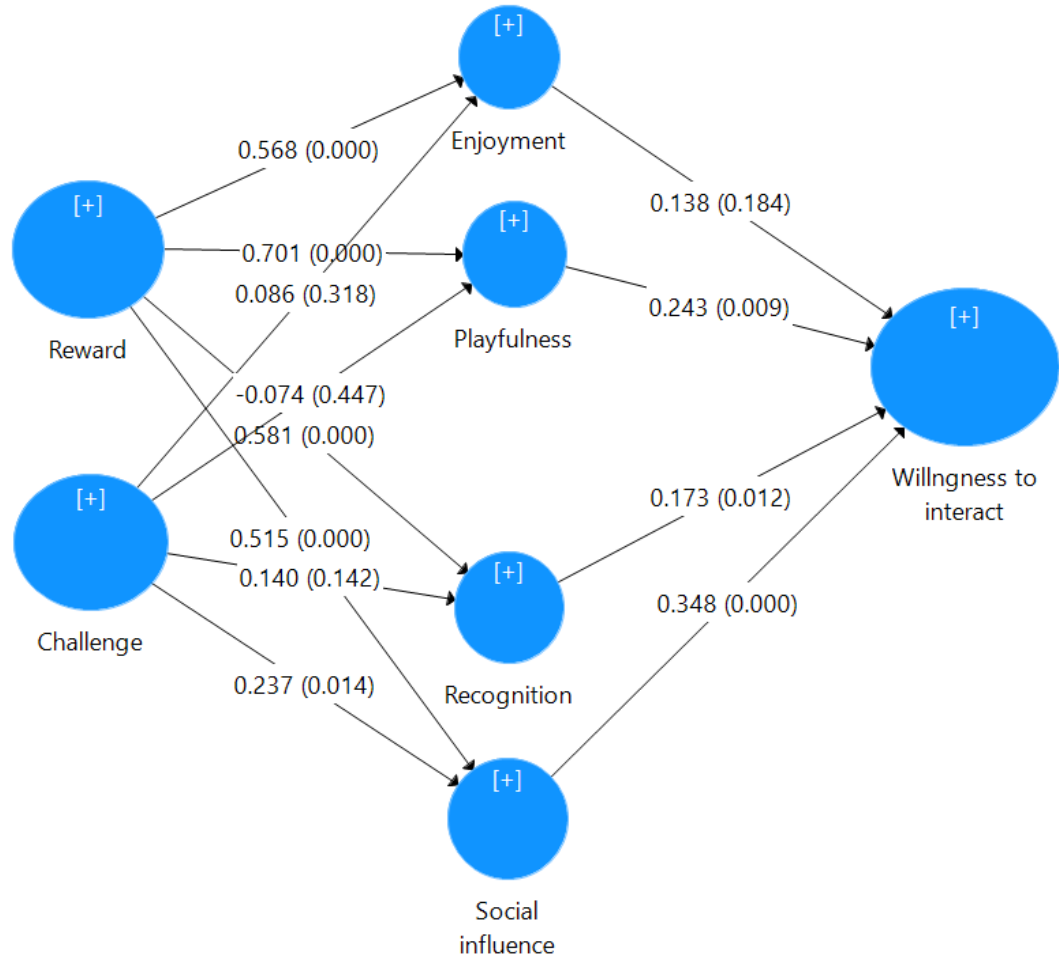
The figure above shows the output from the SmartPLS analysis. The lines connect the independent variables via the mediators to the dependent variables. The output shows the outer weights (outside the bracket) and the path coefficients (inside the bracket). This output was produced upon running the analysis for the seven (7) variables having a total of twenty-eight (28) items.

Following this, the figure below (*figure 5*) also from SmartPLS shows the inter-relationships among the variables. For each comparison, it shows the original mean, the sample mean, standard deviation, t-stats, and p-values (in the last column).

Figure 5: Path coefficients II

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Challenge -> Enjoyment	0.086	0.088	0.086	1	0.318
Challenge -> Playfulness	-0.074	-0.074	0.097	0.761	0.447
Challenge -> Recognition	0.14	0.148	0.095	1.47	0.142
Challenge -> Social influence	0.237	0.239	0.097	2.458	0.014
Enjoyment -> Willingness to interact	0.138	0.129	0.104	1.332	0.184
Playfulness -> Willingness to interact	0.243	0.244	0.092	2.63	0.009
Recognition -> Willingness to interact	0.173	0.172	0.069	2.516	0.012
Reward -> Enjoyment	0.568	0.571	0.081	7.027	0
Reward -> Playfulness	0.701	0.703	0.085	8.224	0
Reward -> Recognition	0.581	0.576	0.087	6.674	0
Reward -> Social influence	0.515	0.52	0.096	5.388	0
Social influence -> Willingness to interact	0.348	0.359	0.092	3.78	0

The path coefficient *(figure 4)* shows that the direct relationship between Reward and the hedonic motivations is relatively strong, however, the direct relationship of hedonic constructs with Willingness to interact is weaker. Playfulness (0.243) seems to be a stronger motive in contrast to enjoyment (0.138). With regard to the social motivations constructs, the reward also has a strong relationship with both recognition (0.581) and social influence (0.515). When the model was tested once again, this time having a direct effect of reward on the willingness to use *(figure 6)*, the

calculated coefficient is 0.304, which shows that there is a moderate relationship, and reward does affect the willingness to use without the need of other intervening motivations. The significance of the relationship is measured by the t-statistics being greater than 1.96 at a 95% Confidence Level.

For the following relationships: Challenge to Social influence (0.014), Playfulness to Willingness to interact (0.009), Recognition to Willingness to interact (0.012), Reward to Enjoyment (0), Reward to Playfulness (0), Reward to Recognition (0), Reward to Social Influence (0), and Social influence to Willingness to interact (0) all have significant relationships with the most significant having a p-value of 0. On the other hand, Challenge to Enjoyment (0.318), Challenge to Playfulness (0.447), Challenge to Recognition (0.142), and Enjoyment to Willingness to interact (0.184) all have insignificant relationships with the weakest being 0.447.

Figure 6: R Squared values

	R Square	R Square Adjusted
Enjoyment	**0.404**	0.396
Playfulness	**0.418**	0.41
Recognition	**0.481**	0.474
Social influence	**0.506**	0.499
Willingness to interact	**0.584**	0.573

The figure above shows the output for both R Squared and Adjusted R Squared for the endogenous latent variables. This is the most common effect size measure in path models, carrying an interpretation similar to that in multiple regression. Burns and Burns (2008) state that R Squared explains the degree to which the input variables explain the variation of the output variable and the higher the R Squared for a variable, the more the output is explained by the said variation. In order to make up for the continuous inclusion of more variables, the Adjusted R Squared is used.

49

This ensures that the interpretation is valid even when more variables are added. In our first model, all mediating variables (enjoyment, playfulness, recognition and social influence) and the willingness to interact are endogenous variables. In reference to the above figure, variables for which the R Squared (and Adjusted R Squared) present a greater degree of explanation to the output variable are Enjoyment with Adjusted R Squared of 0.396, Playfulness (0.41), Recognition (0.474), Social influence (0.499), and Willingness to interact (0.573). By implication, at least 39.6% of Enjoyment is explained by its variables, 41% of Playfulness explained by its variables, 47.4% of Recognition explained by its variables, 49.9% of Social influence by its variables and 57.3% of Willingness to interact explained by its variables serving as the variable with the highest Adjusted R Squared. We can conclude that 58.4% of the variance in willingness to interact is explained by the hedonic and social variables affected by the gamification elements. It is therefore valid to say the model is good. However, the remaining variables not listed did not have an Adjusted R Squared above the threshold of approximately 0.4 or 40%.

6. Discussion

In this study, we investigated various factors that influence the willingness to interact with TikTok by developing a conceptual model (*figure 1*). In the proposed conceptual model, 2 gamification attributes and 4 motivational categories were identified as mediating characteristics, enjoyment, playfulness, recognition, and social influence. The model was empirically tested through analyzing responses from a survey regarding the motivations to interact with the platform.

6.1 Supported hypothesis

6.1.1 Reward is positively related to the willingness to interact with platform end-users via playfulness

Since the scope of rewarding elements being explored has been limited in past research as most of the work revolved around points, badges or levels, leaderboards (Yahia, Al-Neama & Kerbache, 2018). Playfulness is a mood, presenting a much longer duration than emotions, whereas reward is a control mechanism, the interaction is mostly controlled by the platform itself. Using motivation as the core concern of gamification, our findings show that rewards and the hedonic aspect of playfulness are positively related to willingness to interact. Our hypothesis is therefore supported, as it demonstrates a significant positive effect of the two types of motivations, reward, and playfulness. This relationship was expected to be positive because Rao (2008) had previously stated that some of the qualities of playfulness are: fast rewards and a lot of positive feedback for user interaction. Overall from our statistics report (*figure 17*), 79% agreed that TikTok is playful.

An interesting observation is that playfulness is not positively associated with intention to use, neither with the intention of WOM (Cerutti, 2017). In contrast to Cerutti's study, our study adjusted the traditional TAM by introducing the effect of gamification, hence we can notice that playfulness is positively related to the willingness to interact which is compiled by a combination of intention to use and intention to WOM items. By looking at the correlation matrix (*figure 18*), the correlation between playfulness and reward is slightly stronger than the correlation between the latter hedonic motive, enjoyment. In conclusion, observation confirms previous work supports that perceived playfulness positively impacts users' reactions in online and mobile marketing contexts (e.g., Ahn et al. 2007; Davis et al. 1989, Davis et al. 1992; Lin, Wu, & Tsai, 2005) and (Hwang & Choi, 2020).

6.1.2 Reward is positively related to the willingness to interact with platform end-users via recognition

In our study, the hypothesis (3a) shows that it is strongly supported. With a p-value of 0.021, it indicates a strong positive relationship with willingness to interact via recognition. Thus, the independent variable Reward through the mediating variable recognition has a strong positive relationship with willingness to interact. According to this finding, recognition serves as a valid mediator for increasing the reward factor in the motivational drivers that impact platform end-users' willingness to interact. By implication, the recognition factor in social network platforms serves as an incentive sufficient enough to encourage continuous activity on the platform. These findings are consistent with the assertion that social network users derive a form of social currency from the recognition they get for being active on social network platforms (Ryan & Deci, 2000). Many active users of social network platforms desire to be visible and recognized for their activity on social networking platforms. When this desire is met, their tendency to be more active is increased. Additionally, the reciprocal interaction that users get when engaging with social network platforms as stated by Hamari and Koivisto (2013), further raises their interest level to engage with other users, thereby increasing their activity level on the platforms. TikTok is a social networking platform that provides users the opportunity to be recognized beyond their circle of friends. By using sophisticated algorithms, it displays a content created by a user to several other users unknown to the user, and in many cases, even outside the geographical boundaries. The platform, therefore, increases the possibility of a platform being recognized by thousands or over a million users. Additionally, with its option to share, comment on and re-produce an existing content, while still showing the original content, TikTok greatly serves the desire for users to be recognized. As discovered by our findings, the theory that users derive motivation from being recognized and interpret such recognition as a form of reward holds true and valid. Not only is there a positive relationship but also that, the relationship is strong.

6.1.3 Reward is positively related to the willingness to interact with platform end-users via Social influence

Hypothesis (4a), was also found to be supported. With a p-value of 0.007, it shows a strong positive relationship with the dependent variable. This means social influence as a variable is interpreted as and serves as a form of reward to platform end-users. Therefore, the more social network users are rewarded for their activity online, the more their role in social influence is impacted and the greater their activity level will be. In the study by Hamari and Koivisto (2013) previously cited, the authors found that the more friends a user has on a social network platform, the greater the adoption of the platform. This is because not only is the user able to invite and recommend the platform to their friends but also the presence of more peers serves as an incentive for incoming and new users. This further impacts their activity level because as they see their peers and other

users become active on a platform, they get enthused to also be active on the platform. In the case of TikTok, through making it possible for users to share, comment and use hashtags, the impact of Word-of-Mouth is intensified. Thus, the platform magnifies the impact of social influence on end-users. According to the social proof theory propounded by Cialdini (2001), through social influence, users allow their behaviors to be controlled by other users as they involuntarily imitate each other. This is partly so the end-users can satisfy their need for gratification for having complied with social norms. In many ways, by complying with what becomes popular on social network platforms, users' behaviors are not only influenced but also, the users are provided with a form of reward. Thus, as per our studies, it appears to be the case that users of TikTok have an activity level that is significantly impacted by the reward derived from social influence on the platform. For TikTok, it works in multiple ways: both as the one influencing others and also as the one being influenced. This perhaps, explains why the level of significance is great compared to other variables.

6.1.4 Challenge is positively related to the willingness to interact with platform end-users via Social influence

TikTok is a very social affiliated digital platform and social influence is a significant predictor when it comes to interacting activities, it is even stronger if it is virtually afflicted. The UGC consists of the creation of challenges by ordinary people and this is where the hedonic role of social influence has a striking role in influencing the level of interaction with the platform (Cerutti, 2017).

Post the analysis we had a very interesting outcome regarding hypothesis 4b, where the challenge attribute is only positively related to willingness to interact via the mediator of social influence. However, this is also unsurprising because as from our statistical report (figure 17) only 29% of the respondents felt demotivated by the challenges posed by other users, implementing that the majority of our sample would be more likely to interact with the challenges posed by their peers and the social media network.

Evidence was found that there are feelings of connectedness between people when playing games. Social presence has been described as a state in which a user experiences virtual social actors as actual ones (Lee, 2004). (Högberg, Hamari, & Wästlund, 2019). In their qualitative study, Högberg and Hamari and Wästlund (2019) found a strong prevalence of social aspects and this confirms it. Challenges allow the exploitation of one's skillset, overcoming anxiety, and seeking acceptance from society by assimilating oneself. One of the strongest correlations (0.63) observed was between the attitude influenced by others and the motivation to perform challenges.

6.2 Unsupported hypothesis

6.2.1 Reward is positively related to the willingness to interact with platform end-users via enjoyment

Results showed that rewards have an insignificant effect on the willingness to interact when enjoyment acts as a mediator, as hypothesis 1a is unsupported ($p > 0.05$). The reason for this could be that as Kohn (1993) found out that rewards become habitual and therefore the feeling does not remain exciting anymore. However, the data suggests that the majority of our respondents found the digital platform enjoyable and exciting.

The observed correlation average of the items representing rewards and enjoyment is estimated at 0.46, although it is still positive, it is moderate and not a strong association. The r square also shows a low effect size of the mediating variable on the overall effect of willingness to interact. A justification for the insignificance could be that the stress involved in thinking and creating content may disrupt the joy that the platform brings. Although TikTok is not a game itself, it can be enjoyed to an extent that is dependent on social reaction. Also, the interactive platform would be considered more enjoyable if not for the amount of effort into creating content.

Having an insignificant relationship does not necessarily mean that the gamification attribute of rewards is not enjoyable in the process of interacting with the platform. According to self-determination theory, the behavior is mostly triggered by intrinsic motivation, i.e., motivation to interact in activities for personal pleasure and enjoyment from the activity itself (Ryan & Deci, 2000). Therefore we expected that intrinsic motivation, like challenge, would have a greater effect through enjoyment (Hwang & Choi, 2020). There is a negative association by implying a rewarding system, as it has the potential to push away the enjoyment of the activity if you see someone else get a reward for engaging and this can have a motivation killing effect for some insecure or competitive minded users (Kohn, 1993). The most common thing about having a form of reciprocal benefit, like rewards, motivates people to get rewards but not necessarily motivated to share, create or interact with the content in the process and it just stops at fulfilling satisfaction, instead of reaching a level of enjoyment.

6.2.2 Challenge is positively related to the willingness to interact with platform end-users via enjoyment

We can conclude that as shown in figure 3, hypothesis 1b is not supported ($p = 0.48$) and it has a very weak correlation with an average of 0.35. This result is quite surprising to our expectations, as challenges on TikTok are a characteristic that most people perform and watch on the platform and they seem to enjoy it since they share it and also get positive reactions. By performing a

challenge on the platform, it means you are a part of something viral, that everyone is doing, but looking at our results this may also mean that one is simply doing it for the social benefit rather than enjoyment.

Through their research, Abuhamdeh and Csikszentmihalyi (2012) suggest that challenge can contribute to enjoyment even when not accompanied by corresponding perceptions of skill. Interacting with TikTok does not require a particular skill but the perception of watching other users being good at the challenges posted can easily diminish the level of enjoyment, leading to the interaction. Cognitive evaluation theory (CET) considers that the enjoyment of a challenge is rooted in perceptions of competence. According to CET, users enjoy the idea of performing a challenge because it allows them to feel a true sense of competence and social acceptance (Ryan & Deci, 2000). Individuals who find the technology playful, which disseminates from activities such as challenges, may come to a conclusion that the platform is easy to use because the enjoyment received from using it outweighs the effort spent to use it, in fact, the correlation between playfulness and enjoyment is relatively higher than with that of challenge. (Sledgianowski & Kulviwat, 2009). In contrast to our results, it has been found that the perceptions of challenge are strongly predicted by enjoyment even after controlling for perceptions of skill, for example using rewards (Abuhamdeh & Csikszentmihalyi, 2012).

6.2.3 Challenge is positively related to the willingness to interact with platform end-users via playfulness

The hypothesis (2b) had a p-value of 0.495 and thus, was not supported. Although the argument was made in the theoretical model of why playfulness is a valid mediator that enables challenge to impact end-users' willingness to interact, the analysis produced an outcome that is not supported. Contrary to the studies by Ahn and Han (2007) where they found playfulness to be an enhancement that encouraged interaction among users of a retail website, our studies did not show a strong relationship with playfulness serving as a mediator. A reason for this can be explained as a consequence of the respondents being more drawn towards playfulness as a reward than as a challenge. To many of the respondents, TikTok as a social network platform is perceived as a friendly platform that enables adults to play with no or little restriction. The idea of challenge eliminates the child-like appeal the platform evokes. Additionally, another explanation could be the items used in the survey. Despite the validity of the model and as shown, indeed there is a positive relationship only it is not sufficient to be supported. Our analysis from Qualtrics (figure 17) shows that, for the items categorized under challenge, the majority of the respondents selected the neutral option of "neither agree nor disagree" with the next most selected option being "somewhat agree". Perhaps should the items be rephrased to evoke less competitiveness and "seriousness" the findings might be different. Nonetheless, the positive relationship still provides

a basis to entice interaction among platform end-users. As found in our studies, when respondents were asked about how the challenge impacts their creativity and skill level, the majority selected the "somewhat agree" option. This shows that, although there is no strong evidence to connect challenge to playfulness and to the willingness to interact, platform end-users still acknowledge the benefits of engaging in digital social challenges.

6.2.4 Challenge is positively related to the willingness to interact with platform end-users via recognition

The hypothesis (2b) with a p-value of 0.242 is also not supported. Though there is evidence of a relationship, there was no significance to emphasize the relation challenge has with platform end-users via recognition. In reference to our theoretical model, the basis for this hypothesis is partly due to the possible impact of views that social network platform users may desire in order to be recognized among other users. As stated earlier, comparison among other users is expected to invite more engagement among end-users as they strive to gain recognition. However, we would recall that Tolentino (2019) stated that, TikTok is a social network platform that has nothing to do with a user's own social network (ie. friends and other connections). Perhaps this may be a reason why users do not perceive challenges as a motivating factor through recognition. After all, if users do not necessarily have their friends and connections following them and viewing every post of theirs, it is logical to say that, users' motivation for interaction with a social network platform does not include the need to be recognized among their peers or social circles. Additionally, as explained earlier, TikTok's algorithm allows users content to reach users outside their geographic boundaries. As such, there is little need for users to crave recognition that would be utilized in earning additional following for increased views. Besides, due to the same reason, the TikTok algorithm, users' content is able to easily go viral and also numerous content go viral such that, gaining recognition does not become a hustle once a user creates good content. It is worthy to also add that many end-users of the platform also invest time in viewing content, sharing, liking and commenting, which are all forms of interaction that are equally valued by users. Also, as discussed in previous sections above, recognition is earned more through reward than through challenge. It is, therefore, valid to say that the findings prove the impact of the different ways end-users perceive certain motivational drivers.

7. Conclusion

The focus of this research was to examine the impact of gamifying digital platforms on end-users' willingness to interact. Existing literature has mostly focused on the intention of WoM and intention to use but has provided little knowledge about end-users' actual engagement with digital platforms. By concentrating on end-users' willingness to interact, our research is able to demystify the actual motivational drivers that get users hooked onto a platform. Consequently, this knowledge would provide insight into how to attract users to a digital platform and leverage on that to grow a platform's popularity. Additionally, through this study, we hoped to contribute to the pool of research that intersects marketing and technology. This knowledge will be useful to marketers in decision making particularly regarding advertisement and platform design. To contextualize our study, we narrowed our study to social network platforms using TikTok as a case study. By modifying the popularly known Technology Acceptance Model (TAM) and basing on existing literature on gamification, we innovated a model that we used for this study.

Reward and Challenge were our main independent variables while Enjoyment, Playfulness, Recognition, and Social Influence were used as mediating variables. After analyzing data collected from 282 respondents, we discovered that four of our hypotheses held valid while the other four were not supported. Primarily, our study revealed that Reward as an element of gamification significantly impacts end-users' willingness to interact. The analysis revealed that reward is able to impact willingness to interact through playfulness, recognition and social influence. Challenge contrary to our expectations are able to impact end-users' willingness to interact only through social influence. A key contribution of these findings is that our study introduces a new dimension regarding ways to gamify a digital platform. Instead of focusing on numerous variables, some of which may be effective and some which may not be effective, platform designers and marketers can focus on reward as a major variable. Through reward, the benefits of all the three mediating variables listed above are attained. That is, in addition, to reward itself. Moreover, challenge also serves as a motivational driver and also impacts end-users' willingness to interact through social influence. Based on our study, it is more advantageous for marketers to concentrate on these variables in implementing gamification of digital platforms. The gamification of platforms is also applicable to marketing advertisements and campaigns such as market activations, events and product launches (Moise & Cruceru, 2014).

Furthermore, through confirmatory factor analysis, our model emerged valid and reliable. Unlike previous studies that have focused on utilizing solely the Technology Acceptance Model, our study has introduced the possibility of innovating new and customized models that can predict specific impacts while adjusting variables to be considered. This opens the door to further studies in this field. Future studies will therefore not necessarily be limited to the TAM.

57

Below we elaborate in detail, the practical and theoretical contributions of our study.

7.1 Theoretical Implications

This study amplifies the technology acceptance model used in previous research (Davis, 1989) and by modifying it using a combination of literature on gamification (such as; Hamari, J. and Koivisto, 2015; Amir & Ralph, 2014; and Bittner & Shipper, 2014). By combining TAM and gamification literature we are bridging a gap between the old school of thought, where the focus was behavior on the effect of using and shifting towards the new school of thought by introducing the gamification attributes, which are being used in innovative social networking platforms. Therefore this thesis attempts to contribute to the current literature by focusing on; gamification, hedonic and social motivation and their effect on social network platforms such as TikTok.

Through our thesis, we have implemented existing theories into creating a new theoretical model by including gamification as a new form of motivation alongside the existing social and hedonic drivers that drive users to interact, as discussed in the theoretical framework. Most theories revolving around the use of gamification are interrelated with motivations. We focused on the motivations of platform users to interact with the UGC on the platform, TikTok by using rewards and challenges as initiatives and tactics.

It is important to note that the foundations of the TAM model have been continuously extended throughout the years with the result that some researchers may have difficulty understanding which version of the model is the definitive one (Sledgianowski & Kulviwat, 2009). While our research can also be considered a form of an extension of TAM, our model offers a unique combination of factors imposed by the indirect gamified environment that the social network platform allows.

7.2 Managerial Implications

In addition to the theoretical findings elaborated above, our findings provide numerous benefits to business practitioners including marketing managers, advertisement placement specialists, digital content creators, digital platform developers, website publishers among others. Below, we explain further, how our findings can be implemented efficiently.

Our findings have proven that the gamification of digital platforms is effective in achieving the outcome of increasing engagement. Given one of the key objectives of marketing is to increase consumer engagements, gamification provides the go-to-solution for resolving to achieve this goal. Digital platform designers and digital content creators should, therefore, be more drawn towards

featuring gamification elements in the design strategy. TikTok's huge patronage is a practical example of how gamifying a social network platform can make the platform more attractive. Not only does this make a platform more attractive but most importantly, it increases user engagement. Through increased user engagement, the platform's popularity increases and this has a ripple effect on increasing the overall number of users on the platform. In order to gamify platforms or digital content, decision-makers should focus on the variables proven to have a strong significance in influencing users' willingness to interact, mainly reward. Reward or intrinsic reward is able to provide the benefits of playfulness, recognition and social influence all of which strongly and positively impact the willingness to interact. The enhancing challenge also increases the benefit of challenge itself as a motivational driver and the impact of social influence in enticing users' to interact more. This approach can be applied to a company's own digital platforms such as websites, mobile applications and intricate digital features in company offices for employees.

Ad placement has always been a tough decision for marketing managers. The decision of where and when to place an ad in addition to how to design the ad content itself is a challenge to many. According to our findings, users will be more willing to engage content that evokes the excitement of intrinsic reward in the form of playfulness, recognition and social influence and also challenge in the form of social influence. This finding can serve as a guide to marketers as they develop advertisements and make decisions regarding ad placements. It will enable managers to know what factors to focus on as they develop better advertisement content that will ensure customer engagements which are shown to increase the likelihood of customers making purchases. Our findings aid in reducing the cost of designing marketing advertisements by ensuring that features considered are precise and objective.

Some previous literature has hinted at the possibility of gamifying non-digital related platforms. Our findings introduce the possibility of making this a reality in the marketing of products. Besides the enormous impact gamification can achieve on digital platforms, the principle of gamification can also be implemented in off-line marketing activities such as events, product launches and retail shop design. By focusing on the strongly significant variables revealed by our findings, marketers are able to increase the gains from these marketing activities be it market activations or shopper experience. Consequently, this should result in greater sales leads for the company. This approach is particularly significant in times when consumers are confronted with an overload of information and activities from marketers. A gamified marketing activity is likely to be more appealing to consumers than the usual forceful and rather drab approach which consumers may find irritating.

These are but a few of the numerous benefits practitioners can derive from understanding the usefulness of gamification. In conclusion, based on our findings, we will recommend gamification to marketers and business practitioners as a contemporary and more effective way of enhancing users or customer engagement and thus, increasing profitability.

7.3 Limitations and future research

In spite of our effort to provide relevant information from our research, we must acknowledge that there were a number of limitations we were confronted with. Among these are the timing of our research period coupled with the current happenings in the world, our attempt to innovate a new model different from existing models and the challenge of data collection.

First, limitation in terms of time constraint has had an impact on our work. The entire research period was to last for 10 weeks which includes the selection of topics, data collection, analysis and all other works related to our research. During the first couple of weeks, we have had to adjust our topic consistently, in order for our research to fit within the given time frame and the academic conditions. As a result, we have had to substitute most of our earlier content with new literature and conduct further secondary research to be able to proceed with our work. Another major obstacle that tempered with the timing was the sudden spread of the Covid-19 virus which led to the global pandemic. As a consequence, classes were halted and most activities canceled. The uncertainty of the period led to the rescheduling of many activities, some of which had to do with the personal affairs of many of the people we identified as targets for our data collection. Consequently, the data collection process was delayed and many individuals were not easily accessible to participate in the survey. We are confident that, had it not been for these circumstances, our sample data would be much larger and thus increase the significance of our findings.

The second main challenge had to do with our choice of a new framework. For the purpose of our study, we innovated a framework through altering the popularly used TAM model and fusing the model with existing gamification models. Through this, our research focuses on the Willingness to Interact among end-users as compared to the most studied Intention to Use and Intention to WoM. Additionally, our invented framework made use of the hedonic and social motivations as rather, mediating variables than independent variables. Using gamification as the dependent variable, our study focused on only two of gamification's variables which are Challenge and Reward as independent variables. While we are most proud of our innovation and effort to intrigue a new way of studying the motivational drivers of gamification, we acknowledge that it was challenging settling on which variables to adopt and which ones to reject. Variables such as user characteristics and the impact of demographic factors as suggested by Charness and Boot (2016) were not considered in our study. Additionally, in order to reduce the number of mediating variables, we also did not include utilitarian motives. Although the elimination was mostly as a result of it not having a consequence on our subject of interest, however, it can be followed up by further studies, which can consider all variables inclusive to clearly assess the motivational drivers holistically.

During our data collection we observed that, while many people knew about the platform TikTok and had seen memes downloaded from the platform, not many people within our target groups

considered themselves to be familiar with the platform. There were also a number of people who had only limited experience with the platform. Such people may have used the platform once or only a couple of times although they may still have had the app on their mobile devices. These situations posed a challenge to our data collection process as, in many cases, we needed to gain certainty of the target group's level of experience with the application before sharing the survey with them. This slowed down the data collection process also reduced the number of valid responses initially anticipated.

Besides these limitations stated above, another factor that can be taken into consideration for future studies will be the characteristics of the target group. Given the increase in influencer activities on Social network platforms such as TikTok and their consequent impact on drawing additional users to the platforms, it will be interesting to target these influencers only as samples for future studies. In spite of their intense engagements with such platforms, findings based on their responses would be particularly impactful. Additionally, such a target group would pose no challenge as to the extent of a respondent's awareness and experience with the platform.

A limitation we encountered relating to the collection of data has to do with the chosen audience of respondents. From previously stated statistics it is known that most TikTok users who are active on the platform are teenagers under 18 years of age. However, we decided not to take these minors into consideration for our data collection due to more difficulties in obtaining consent from their guardians to collect certain data. Future research can address this audience for more accurate results.

Lastly, the field of gamification is generally regarded new and thus, there is limited literature that relates to this topic especially taking into consideration how it can impact marketing strategies and more specifically, the development and marketing of modern technologies such as Social network platforms. In respect to this, we will like to suggest further studies similar to this, with the use of qualitative methods so as to juxtapose the findings with those derived from quantitative studies as ours. Through qualitative studies, the exact behavioral patterns and actual activities of these target groups can be observed for deeper analysis and to compare with their responses.

8. References

Abuhamdeh, S. and Csikszentmihalyi, M. (2012). The Importance of Challenge for the Enjoyment of Intrinsically Motivated, Goal-Directed Activities, Personality and Social Psychology Bulletin, 38(3), pp. 317–330, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 May 2020]

Adner, R. and Kapoor, R. (2010). Value creation in innovation ecosystems: how the structure of technological interdependence affects firm performance in new technology generations, Strategic Management Journal (John Wiley & Sons, Inc.), 31(3), pp. 306–333, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 10 April 2020]

Ahn, T., Ryu, S., and Han, I. (2007). The impact of Web quality and playfulness on user acceptance of online retailing. Information and management, 44(3), 263-275, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 16 April 2020]

Ajzen, I., (1991). The theory of planned behavior. Organizational behavior and human decision processes, 50(2), pp.179-211, Available online: https://doi.org/10.1016/0749-5978(91)90020-T [Accessed 30 March 2020]

Alghizzawi, M. (2019). A survey of the role of social media platforms in viral marketing: The influence of eWOM, International Journal of Information Technology and Language Studies (IJITLS), Vol. 3, issue 2, pp. 54–60, Available online: https://www.researchgate.net/profile/Mahmoud_Alghizzawi/publication/335110016_A_survey_ of_the_role_of_social_media_platforms_in_viral_marketing_The_influence_of_eWOM/links/5d 5106a74585153e594ea689/A-survey-of-the-role-of-social-media-platforms-in-viral-marketing-The-influence-of-eWOM.pdf [Accessed 2 April 2020]

Amir, B., & Ralph, P. (2014). Proposing a theory of gamification effectiveness. In Companion Proceedings of the 36th International Conference on Software Engineering (pp. 626-627), Available online: doi: 10.1145/2591062.2591148 [Accessed 1 May 2020]

Anderson, K. E. (2020). Getting acquainted with social networks and apps: it is time to talk about TikTok, Library Hi Tech News Vol. 37, Issue 4, pp. 7-12, Emerald Publishing Limited, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 April 2020]

Antin, J., & Shaw, A. (2012). Social desirability bias and self-reports of motivation: a study of amazon mechanical turk in the US and India. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, pp. 2925-2934 Available online: https://doi.org/10.1145/2207676.2208699 [Accessed 3 April 2020]

Ariely, D., & Norton, M. I. (2009). Conceptual consumption. Annual review of psychology, 60, 475-499, Available online: https://doi.org/10.1146/annurev.psych.60.110707.163536 [Accessed 2 April 2020]

Artanti, Y., Hari Prasetyo, F. and Sulistyowati, R. (2019). "How Social Media Marketing Influences Online Purchasing Decision: Study of the Viral Marketing and Perceived Ease of Use", KnE Social Sciences, 3(11), pp. 988–1004, Available online: https://knepublishing.com/index.php/KnE-Social/article/view/4066 [Accessed 12 January 2020]

Bampo, M., Ewing, M., Mather, d., Stewart, D., & Wallace, M. (2008). The Effects of the Social Structure of Digital Networks on Viral Marketing Performance, Information Systems Research, 19(3), p. 273, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 21 March 2020]

Bandura, A. (1993). Perceived Self-Efficacy in Cognitive Development and Functioning, Educational Psychologist, 28(2), p. 117, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 April 2020]

Baptista, G. and Oliveira, T. (2019). Gamification and serious games: A literature meta-analysis and integrative model, Computers in Human Behavior. Elsevier, 92, pp. 306–315, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 30 April 2020]

Barnett, L. A. (2007). The nature of playfulness in young adults. Personality and individual differences, 43(4), 949-958, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 21 April 2020]

BBC.com (2020). Coronavirus: Ghana's dancing pallbearers become Covid-19 meme, Available online: https://www.bbc.com/news/av/world-africa-52503049/coronavirus-ghana-s-dancing-pallbearers-become-covid-19-meme

Berger, J. and Milkman, K.L. (2012). What makes online content viral?. Journal of marketing research, 49(2), pp.192-205, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 January 2020]

Bhaskar, R. (1978). On the Possibility of Social Scientific Knowledge and the Limits of Naturalism', Journal for the Theory of Social Behaviour, 8(1), p. 1, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed: 15 May 2020]

Bittner, J. V., & Shipper, J. (2014). Motivational effects and age differences of gamification in product advertising. Journal of consumer marketing 31(5), pp. 391–400, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 15 April 2020]

Borges-Tiago, M. T., Tiago, F. and Cosme, C. (2019). 'Exploring users' motivations to participate in viral communication on social media', Journal of Business Research, 101, pp. 574–582. doi: 10.1016/j.jbusres.2018.11.011, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 January 2020]

Burns, R. B. and Burns, R. A. (2008). Business research methods and statistics using SPSS. SAGE. Available online: https://search-ebscohost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=cat07147a&AN=lub.2004181&site=eds-live&scope=site [Accessed 20 April]

Cialdini, R.B. (2001). Harnessing the science of persuasion, Harvard business review, 79(9), pp.72-81, Available online: https://hbr.org/2001/10/harnessing-the-science-of-persuasion [Accessed 29 April 2020]

Corcoran, T. (2009). Second nature, British Journal of Social Psychology, 48(2), pp. 375–388, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 11 April 2020]

Datareportal (2020). Global social media overview. Available online: https://datareportal.com/social-media-users?rq=tiktok [Accessed 9th April]

Davis, F. D. (1989) 'Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology', MIS Quarterly, 13(3), pp. 319–340, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 10 May 2020]

Davis, F. D., Bagozzi, R. P. and Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace, Journal of Applied Social Psychology, 22(14), pp. 1111–1132, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 5 May 2020]

De Reuver, M., Sørensen, C. and Basole, R. C. (2018). The Digital Platform: A Research Agenda, Journal of Information Technology, 33(2), pp. 124–135, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 17 March 2020]

Deci, E. L., and Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. New York, NY: Plenum

Deterding, S., Dixon, D., Khaled, R. and Nacke, L. (2011). From game design elements to gamefulness: Defining gamification, Sciences du Jeu, Vol 2 pp. 9–15, Laboratoire Experience, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 2 May 2020]

Duggan, M. and Brenner, J. (2013). The demographics of social media users, 2012 (Vol. 14). Washington, DC: Pew Research Center's Internet and American Life Project. Available online: http://pewinternet.org/Reports/2013/Social-media-users.aspx [Accessed 2 April 2020]

Durand, R., Robert M., Tammy L., McIntyre, D. and Srinivasan, A. (2017). Networks, platforms, and strategy: Emerging views and next steps, Strategic Management Journal, Wiley Blackwell, vol. 38(1), pages 141-160, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 April 2020]

Easterby-Smith, M. (2018). Management and business research. 6th edition. SAGE, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 1 March 2020]

Fadil, A. (2015). Value co-creation process in small and medium enterprise by utilization of viral marketing as a branding tool: a system dynamic approach. Procedia-Social and Behavioral Sciences, 169(5), pp.258-265, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 27 January 2020]

Filsecker, M. and Hickey, D. T. (2014). A multilevel analysis of the effects of external rewards on elementary students motivation, engagement and learning in an educational game, Computers and Education, Elsevier Ltd, 75, pp. 136–148. doi: 10.1016/j.compedu.2014.02.008. [Accessed 1 may 2020]

Fishbein, M., & Ajzen, I. (1975). Misconceptions about the Fishbein model: Reflections on a study by Songer-Nocks. Journal of Experimental Social Psychology, 12(6), 579-584, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 1 May 2020]

Francisco-Aparicio, A., Gutiérrez-Vela, F.L., Isla-Montes, J.L. and Sanchez, J.L.G. (2013). Gamification: analysis and application. In New trends in interaction, virtual reality and modeling (pp. 113-126). Springer, London.

Galea Debono, F. (2020). Tiking all the boxes, Times of Malta, Available online: https://timesofmalta.com/articles/view/tiking-all-the-boxes.793388 [Accessed 22 May 2020]

Garson, G. D. (2016). Structural equation modeling. School of Public and International Affairs, North Carolina state University, Statistical Publishing Associates

Gawer, A. (2014). Bridging different perspectives on technological platforms: Toward an integrative framework, Research Policy , 43 (7), 1239-1249, Available online: https://doi.org/10.1016/j.respol.2014.03.006 [Accessed 20 April 2020]

Ghazawneh, A. and Henfridsson, O. (2010). Balancing platform control and external contribution in third-party development: The boundary resources model, Information Systems Journal vol. 2

no. 23, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 April 2020]

Gil-Or, O. (2010). Building consumer demand by using viral marketing tactics within an online social network, Advances in Management, Vol. 3 No. 7, pp. 7-14, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 25 April 2020]

Glynn, M. A., and Webster, J. (1992). The adult playfulness scale: An initial assessment. Psychological reports, 71(1), 83-103, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 21 April 2020]

Hair, J., Hollingsworth, C.L., Randolph, A.B. and Chong, A. (2017). An updated and expanded assessment of PLS-SEM in information systems research, Industrial Management and Data Systems, 117(3), pp. 442–458, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 19 April 2020]

Hamari, J. (2017). Do badges increase user activity? A field experiment on the effects of gamification. Computers in human behavior, 71, 469-478, DOI: 10.1016/j.chb.2015.03.036 [Accessed 10 April 2020]

Hamari, J. (2017). Do badges increase user activity? A field experiment on the effects of gamification, Computers in Human Behavior, 71, pp. 469–478, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 27 April 2020]

Hamari, J. and Keronen, L. (2017). Why do people play games? A meta-analysis, International Journal of Information Management. Elsevier Ltd, 37(3), pp. 125–141, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 2 May 2020]

Hamari, J. and Koivisto, J. (2015). Why do people use gamification services?, International Journal of Information Management, 35(4), pp. 419–431. doi: 10.1016/j.ijinfomgt.2015.04.006, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 15 April 2020]

Hamari, J. and Koivisto, J. (2015). Why do people use gamification services?, International Journal of Information Management, Elsevier Ltd, 35(4), pp. 419–431, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 2 May 2020]

Hamari, J. and Koivisto, J., 2013, June. Social Motivations To Use Gamification: An Empirical Study Of Gamifying Exercise. In ECIS (Vol. 105).

Hamari, J., Hassan, L., and Dias, A. (2018). Gamification, quantified-self or social networking? Matching users' goals with motivational technology. User Modeling and User-Adapted Interaction, 28(1), 35-74, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 16 April 2020]

Hamari, J., Koivisto, J. and Sarsa, H. (2014) Does gamification work? - A literature review of empirical studies on gamification, Proceedings of the Annual Hawaii International Conference on System Sciences. IEEE, pp. 3025–3034, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 1 May 2020]

Hanna, R., Rohm, A. and Crittenden, V. L. (2011). We're all connected: The power of the social media ecosystem', Business Horizons. Kelley School of Business, Indiana University, 54(3), pp. 265–273. doi: 10.1016/j.bushor.2011.01.007 [Accessed 3 April 2020]

Hanna, R., Rohm, A. and Crittenden, V.L. (2011). We're all connected: The power of the social media ecosystem. Business horizons, 54(3), pp.265-273, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 April 2020]

Heijmeskamp, R. (2020). TikTok: The New Social Media Kid on the Block, Lund digital insights, Available online: https://digital.blogg.lu.se/social-media-marketing/tiktok-the-new-kid-on-the-block/ [Accessed 3 May 2020]

Hernandez, B., Montaner, T., Sese, F. J., & Urquizu, P. (2011). The role of social motivations in e-learning: How do they affect usage and success of ICT interactive tools? Computers in Human Behavior, 27(6), 2224-2232, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 15 April 2020]

Ho, J. Y. C. and Dempsey, M. (2010). Viral marketing: Motivations to forward online content, Journal of Business Research, 63(9), pp. 1000–1006, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 2 April 2020]

Högberg, J., Hamari, J. and Wästlund, E. (2019). Gameful Experience Questionnaire (GAMEFULQUEST): an instrument for measuring the perceived gamefulness of system use. User Model User-Adap Inter 29, 619–660 (2019), Available online: doi: 10.1145/1457199.1457202 [Accessed 10 May 2020]

Huang, L.Y. and Hsieh, Y.L. (2011). Predicting online game loyalty based on need gratification and experiential motives, Internet Research, 21(5), pp. 581–598, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 April 2020]

Huotari, K., and Hamari, J. (2012). Defining Gamification: A Service Marketing Perspective, in Proceeding of the 16th International Academic MindTrek Conference, ACM, pp. 17–22, DOI: 10.1145/2393132.2393137 [Accessed 20 April 2020]

Hwang, J. and Choi, L. (2020). Having fun while receiving rewards?: Exploration of gamification in loyalty programs for consumer loyalty, Journal of Business Research. Elsevier, 106, pp. 365–376, Available online: doi: 10.1145/1457199.1457202 [Accessed 10 May 2020]

Iqbal, M. (2020). TikTok Revenue and Usage Statistics, Available online: https://www.businessofapps.com/data/tik-tok-statistics/#2 [Accessed 9th April]

Islam, J., Rahman, Z., & Hollebeek, L.D. (2018). Consumer engagement in online brand communities: a solicitation of congruity theory, Internet Research, 28(1), pp. 23–45, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 21 March 2020]

Jacobides, M. G., Cennamo, C., and Gawer, A. (2018). Towards a theory of ecosystems, Strategic Management Journal, John Wiley and Sons, Inc. 39(8), 2255-2276, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 April 2020]

Järvinen, A. (2009). Game design for social networks: interaction design for playful dispositions. In Proceedings of the 2009 ACM SIGGRAPH Symposium on Video Games (pp. 95-102), Available online: https://doi: 10.1145/1581073.1581088 [Accessed 19 April 2020]

Jipa, G. and Marin, I. (2014). Proceedings Of The 8 Th International Management Conference Enterprise Gamification In Business To Consumer (B2c) Engagement Model', Management Challenges for Sustainable Development, Vol. 8, issue 1, p. 489-496, Available online: https://EconPapers.repec.org/RePEc:rom:mancon:v:8:y:2014:i:1:p:489-496 [Accessed 15 March 2020]

Juul, J. (2003). The Game, the Player, the World: Looking for a Heart of Gameness, Conference: Digital Games Research Conference 2003, University of Utrecht, The Netherlands, Available online:
https://www.researchgate.net/publication/221217301_The_Game_the_Player_the_World_Looking_for_a_Heart_of_Gameness [Accessed 25 April 2020]

Karatas, F. O. (2016). Examining the Effects of Gamification on Different Variables in Science Education, Conference: 2016 Hoca Ahmet Yesevi Yılı Anısına Uluslararası Türk Dünyası Eğitim Bilimleri ve Sosyal Bilimler Kongresi.

Katz, J., & Gartner, W. B. (1988). Properties of emerging organizations. Academy of management review, 13(3), pp.429-441, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 10 April 2020]

Kenney, M.,& Zysman,J. (2016). The Rise of the Platform Economy, Issues in Science and Technology, 32(3), p. 61, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 15 April 2020]

Kim, C., Mirusmonov, M., and Lee, I. (2009). An empirical examination of factors influencing the intention to use mobile payment. Computers in Human Behavior, 26(3), 310-322, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 16 April 2020]

Kim, T. H., Yoo, H. J., & Lee, I. O. (2009). Evaluation of how the motivation the use of specialized coffee branches brand attitude, satisfaction and loyalty. Journal of the East Asian Society of Dietary Life, 20(1), 149-158, Available online: doi: 10.3746/jkfn.2013.42.1.120 [Accessed 27 April 2020]

Koivisto, J. and Hamari, J. (2014). Demographic differences in perceived benefits from gamification, Computers in Human Behavior. Elsevier Ltd, 35, pp. 179–188, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 29 April 2020]

Koivisto, J., and Hamari, J. (2014). Demographic differences in perceived benefits from gamification. Computers in Human Behavior, 35, 179-188, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 10 April 2020]

Koivisto, J., Malik, A., Gurkan, B., & Hamari, J. (2019). Getting healthy by catching them all: A study on the relationship between player orientations and health benefits in an augmented reality game. In Proceedings of the 52nd Annual Hawaii International Conference on System Sciences (HICSS). Hawaii International Conference on System Sciences, Available online: http://hdl.handle.net/10125/59618 [Accessed 15 April 2020]

Konietzko J., Bocken N. and Hultink E.J. (2019). Online Platforms and the Circular Economy, Innovation for Sustainability, Sustainability 2020, 12(1), 417; https://doi.org/10.3390/su12010417 [Accessed 10 April 2020]

Kwon, K. H. (2019). Public Referral, Viral Campaign, and Celebrity Participation: A Social Network Analysis of the Ice Bucket Challenge on YouTube, Journal of Interactive Advertising, pp. 87–99. doi: 10.1080/15252019.2018.1561342, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 16 March 2020]

Labrecque, L. I., Vor dem Esche, J., Mathwick, C., Novak, T. P., and Hofacker, C. F. (2013). Consumer Power: Evolution in the Digital Age, Journal of Interactive Marketing, 27(4):257–269, DOI: 10.1016/j.intmar.2013.09.002 [Accessed 25 March 2020]

Leclercq, T., Poncin, I., Hammedi, W., Kullak, A. and Hollebeek, L.D., (2020). When gamification backfires: the impact of perceived justice on online community contributions, Journal of Marketing Management, Vol. 36 Issue 5/6, p550-577. doi: 10.1080/0267257X.2020.1736604, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 1 March 2020]

Lee, H. E. and Cho, J. (2017). What Motivates Users to Continue Using Diet and Fitness Apps? Application of the Uses and Gratifications Approach, Health Communication, 32(12), pp. 1445–1453, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 5 April 2020]

Lekhanya, L. M. (2014). The Impact Of Viral Marketing On Corporate Brand Reputation, International Business and Economics Research Journal (IBER), 13(2), p. 213. doi: 10.19030/iber.v13i2.8437.

Lifewire.com (2020). What does it mean to go viral? Available online at: https://www.lifewire.com/what-does-it-mean-to-go-viral-3486225 [Accessed on 27 January 2020]

Lin, C. S., Wu, S., and Tsai, R. J. (2005). Integrating perceived playfulness into expectation-confirmation model for web portal context. Information and management, 42(5), 683-693, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 19 April 2020]

Lindenberg, S. (2001). Intrinsic motivation in a new light. Kylos, Vol. 54 Issue 2/3, p317-342. 26p, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 30 April 2020]

Luarn, P., and Lin, H. H. (2005). Toward an understanding of the behavioral intention to use mobile banking. Computers in human behavior, 21(6), 873-891, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 16 April 2020]

Lucas, K., & Sherry, J. L. (2004). Sex differences in video game play: A communication-based explanation. Communication research, 31(5), p. 499-523, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 30 April 2020]

Lucassen, G., and Jansen, S. (2014). Gamification in consumer marketing - Future or fallacy? Procedia-Social and Behavioral Sciences, 148, 194–202, Available online: https://doi.org/10.1016/j.sbspro.2014.07.034 [Accessed 3 May 2020]

Luhmann, C.C. and Ahn, W.K., 2007. BUCKLE: A model of unobserved cause learning. Psychological review, 114(3), p.657, Available online : doi: 10.1037/0033-295X.114.3.657

Lusch, R. F. and Vargo, S. L. (2014). Service-dominant logic. [Elektronisk resurs] premises, perspectives, possibilities. Cambridge University Press, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 10 April 2020]

Martocchio, J., and Webster, J. (1992). Effects of feedback and cognitive playfulness on performance in microcomputer software training. Personnel Psychology , 45 (3), 553-578, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 16 April 2020]

Meister, J. and Willyerd, K. (2010). Mentoring millennials. Harvard Business Review, Available online at: https://hbr.org/2010/05/mentoring-millennials [Accessed on 31 March 2020]

Miller, A. D., Pater, J., & Mynatt, E. D. (2013). Design strategies for youth-focused pervasive social health games. In 2013 7th International Conference on Pervasive Computing Technologies for Healthcare and Workshops pp. 9-16, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 25 March 2020]

Mohsin, M. (2020). 10 TikTok Statistics That You Need to Know in 2020, Available online: https://www.oberlo.com/blog/tiktok-statistics [Accessed 20 April 2020]

Moise, D., and Cruceru, A. F. (2014). The use of gamification in events marketing. International Journal of Economic Practices and Theories, 4(2), 185-190, Special issue on Marketing and Business Development, e-ISSN 2247–7225, Available online: www.ijept.org [Accessed 23 March 2020]

Moldovan, S., Steinhart, Y., & Lehmann, D. R. (2019). Propagators, Creativity, and Informativeness: What Helps Ads Go Viral, Journal of Interactive Marketing, 47, pp.102-114, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 15 March 2020]

Muntean, C. I. (2011). Raising engagement in e-learning through gamification. In Proc. 6th international conference on virtual learning ICVL, Vol. 1, pp. 323-329, Available online: https://www.researchgate.net/publication/265877898_Raising_engagement_in_e-learning_through_gamification [Accessed 1 May 2020]

Nacke, L. E. and Deterding, S. (2017). The maturing of gamification research, Computers in Human Behavior, 71, pp. 450–454. doi: 10.1016/j.chb.2016.11.062, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 11 February 2020]

Omnicore.com (2020). TikTok by the Numbers: Stats, Demographics and Fun Facts, Available online: https://www.omnicoreagency.com/tiktok-statistics/ [Accessed 25 April 2020]

Qualtrics (2019). Qualtrics software, Version (05/20) of Qualtrics, Provo, UT, USA. Available online: https://www.qualtrics.com [Accessed 1 May 2020]

Rao, V. (2008). Facebook applications and playful mood: The construction of facebook as a third place, MindTrek - 12th International MindTrek Conference: Entertainment and Media in the Ubiquitous Era, pp. 8–12, Available online: doi: 10.1145/1457199.1457202 [Accessed 10 May 2020]

Ruengaramrut, V. (2019). A quasi-experimental investigation of the moderating effects of gamification on the relationship between customer engagement and new service development process involvement, PhD thesis, Knowledge Management and Innovation Management, Graduate School, Bangok University, Available online at: http://dspace.bu.ac.th/jspui/handle/123456789/3867 [Accessed 1st April 2020]

71

Ryan, R. M. and Deci, E. L. (2017). Self-determination theory : basic psychological needs in motivation, development, and wellness. Guilford Press, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 1 April 2020]

Salen, K. and Zimmerman, E. (2004). Rules of Play: Game Design Fundamentals. MIT Press, Cambridge

Saunders, M., Lewis, P. and Thornhill, A. (2007). Research methods for business students. [Elektronisk resurs]. 4. ed. Financial Times/Prentice Hall, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 3 May 2020]

Schöbel, S. and Söllner, M. (2016). How to gamify information systems: Adapting gamification to individual preferences, Paper presented at the European Conference on Information Systems (ECIS). Istanbul, Turkey

Schutz, W. (1976). The FIRO Administrator: Theory, Criteria, and Measurement of Effectiveness, Group & Organization Studies, 1(2), pp. 154–176, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 2 April 2020]

Scott, D. M. (2009). World Wide Rave, Hoboken, New Jersey: John Wiley and Sons, Inc. doi: 10.1002/9781118258286

Scott, D. M. (2015). The new rules of marketing and PR: how to use social media, online video, mobile applications, blogs, news releases, and viral marketing to reach buyers directly. 5th edition, Hoboken, New Jersey: John Wiley and Sons, Inc., Available online: https://search.ebscohost.com/login.aspx?direct=trueanddb=cat07147aandAN=lub.6134198andsite=eds-liveandscope=site [Accessed 31 March 2020]

Seifert, C. and Wi-Suk Kwon (2020). SNS eWOM sentiment: impacts on brand value co-creation and trust, Marketing Intelligence and Planning, 38(1), pp. 89–102. doi: DOI: 10.1108/MIP-11-2018-0533, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 30 January 2020]

Shu-Hui, C., Wann-Yih, W., and Dennison, J. (2018). Validation of EGameFlow: A Self-Report Scale for Measuring User Experience in Video Game Play. Computers in Entertainment (CIE), 16(3), 1-15, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 30 April 2020]

Sledgianowski, D., and Kulviwat, S. (2009). Using social network sites: The effects of playfulness, critical mass and trust in a hedonic context. Journal of Computer Information Systems, 49(4), 74-83, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 16 April 2020]

Smartinsights.com (2020). Viral and word-of-mouth marketing, Available online: https://www.smartinsights.com/online-pr/viral-marketing/ [Accessed 24 January 2020]

Smith, K.T. (2011). Digital marketing strategies that millennials find appealing, motivating, or just annoying, Journal of Strategic Marketing, Vol. 19 No. 6, pp. 489-499, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 25 April 2020]

Stokes, R. (2018). eMarketing: The essential guide to marketing in a digital world, Journal of Chemical Information and Modeling, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 30 April 2020]

Sundar, S. S. and Limperos, A. (2013). Uses and Grats 2.0: New Gratifications for New Media, Journal of Broadcasting & Electronic Media, 57(4), pp. 504–525, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 5 April 2020]

Susarla, A., Oh, J. and Tan, Y. (2012). Social Networks and the Diffusion of User-Generated Content: Evidence from YouTube. Information Systems Research 23(1):23-41, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 25 April 2020]

Timoshenko, A. and Hauser, J. R. (2019). Identifying customer needs from user-generated content, Marketing Science, Vol. 38, issue 1, pp. 1–20. doi: 10.1287/mksc.2018.1123, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 15 April 2020]

Tolentino, J. (2019). How TikTok holds our attention, The New Yorker blog, Available online: https://www.newyorker.com/magazine/2019/09/30/how-tiktok-holds-our-attention [Accessed 25 April 2020]

Van den Berg, I., Franken, I. H., and Muris, P. (2010). A new scale for measuring reward responsiveness. Frontiers in psychology, 1, 239, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 30 April 2020]

Van der Heijden, H. (2004). User Acceptance of Hedonic Information Systems, MIS Quarterly, 28(4), pp. 695–704, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 20 April 2020]

Van Dijck, J. (2009). Users like you? Theorizing agency in user-generated content, Media, Culture and Society, 31(1), pp. 41–58, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 25 April 2020]

Venkatesh, V., & Davis, F.D., (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies, Management Science, vol. 46, no. 2, p. 186, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 13 April 2020]

Venkatesh, V., Morris, M., Davis, G., and Davis, F. (2003). User Acceptance of Information Technology: Toward a Unified View. MIS Quarterly, 27(3), 425-478, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 23 April 2020]

Vinerean, S. (2017). Content Marketing Strategy. Definition, Objectives and Tactics. Expert Journal of Marketing. Viral Marketing and Perceived Ease of Use", KnE Social Sciences, 3(11), pp. 988–1004.

Vorderer, P., Hartmann, T., & Klimmt, C. (2003). Explaining the enjoyment of playing video games: the role of competition. In Proceedings of the second international conference on Entertainment computing (pp. 1-9). Carnegie Mellon University, Available online: https://dl.acm.org/doi/10.5555/958720.958735 [Accessed 27 April 2020]

Wickel, E. E., & Eisenmann, J. C. (2007). Contribution of youth sport to total daily physical activity among 6-to 12-yr-old boys. Medicine & Science in Sports & Exercise, 39(9), 1493-1500, Available online: doi: 10.1249/mss.0b013e318093f56a [Accessed 27 April 2020]

Wikipedia, (2020). TikTok. Available online: https://en.wikipedia.org/wiki/TikTok [Accessed 9th April 2020]

Witt, M., Scheiner, C. W., and Robra-Bissantz, S. (2011, October). Gamification of online idea competitions: insights from an explorative case. A GI annual meeting (p. 392), Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 19 April 2020]

Wuyts, SHK, Dekimpe, MG, Gijsbrechts, E and Pieters, R (eds) (2010). The Connected Customer: The Changing Nature of Consumers and Business Markets. Routledge Academic, New York, Available online: https://research.tilburguniversity.edu/en/publications/the-connected-customer-the-changing-nature-of-consumers-and-busin [Accessed 10 April 2020]

Yahia, I. Ben, Al-Neama, N. and Kerbache, L. (2018). Investigating the drivers for social commerce in social media platforms: Importance of trust, social support and the platform perceived usage, Journal of Retailing and Consumer Services. Elsevier Ltd, 41(November 2017), pp. 11–19, Available through: LUSEM Library website http://www.lusem.lu.se/library [Accessed 10 May 2020]

Zichermann, G., and Cunningham, C. (2011). Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps. Sebastopol, CA: O'Reilly Media.

Appendix

Figure 7: Survey variables and items

Variable	Items	Reference
Reward	1. I feel/would feel incentified to create and share content with others on TikTok 2. I feel/would feel accomplished to be part of the TikTok network 3. I feel/would feel that I am good at creating content if I get multiple likes and shares on TikTok 4. I would interact more with others on TikTok if it does not require a lot of time and effort	Van den Berg, I., Franken, I. H., and Muris, P. (2010)
Challenge	1. I feel/would feel that I am able to compete with other users on TikTok 2. I am motivated by the challenges and content posted by others on TikTok 3. I would only use TikTok to participate in challenges 4. I would feel that my skills will improve the more I interact with other users on Tiktok	Shu-Hui, C., Wann-Yih, W., and Dennison, J. (2018)
Enjoyment	1. I find/would find the experience of content creation by using TikTok interesting. 2. I find/would find the experience of the content on TikTok exciting. 3. I find/would find the experience of the content on TikTok enjoyable. 4. I find/would find the experience of the content on TikTok pleasant.	Van der Heijden (2004)
Playfulness	1. I find TikTok original. 2. I find TikTok playful. 3. I find TikTok flexible. 4. I find TikTok creative.	Webster and Martocchio (1992)

Recognition	1. I feel/would feel good when my videos in TikTok are noticed. 2. I like/would like that other TikTok users share or like my content. 3. I like/would like that my peers notice my TikTok content. 4. It feels/would feel good to notice that other users would share my TikTok content.	Hernandez et al (2011)
Social Influence	1. People who influence my attitudes would recommend TikTok. 2. People who I appreciate would encourage me to use TikTok. 3. My friends would think using TikTok is a good idea. 4. People who are important to me would think positively of me using TikTok.	Ajzen (1991)
Willingness to interact	1. I intend to be more active on TikTok in the future. 2. It is likely that I will share content on TikTok with my friends in the future. 3. I would tell my friends to join TikTok in the future. 4. I find using TikTok as a fun way to interact with friends in the future.	Kim and Son (2009) Venkatesh and Davis (2000)

Figure 8: Question 3 adapted from survey report by Qualtrics

Q3 - Are you familiar with the platform 'TikTok' ?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Are you familiar with the platform 'TikTok' ?	1.00	2.00	1.28	0.45	0.20	239
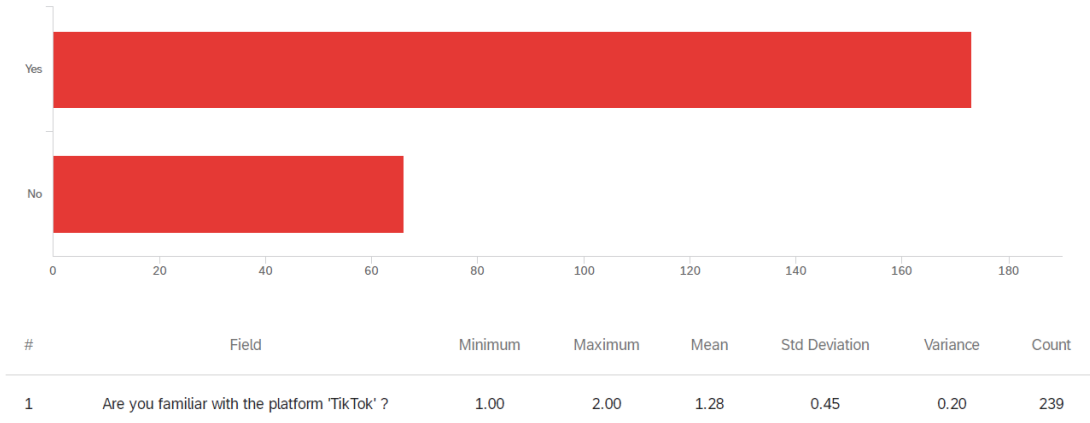
Figure 9: Question 4 adapted from survey report by Qualtrics

Q4 - Do you have the 'TikTok' app downloaded on your digital device/s?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you have the 'TikTok' app downloaded on your digital device/s?	1.00	2.00	1.54	0.50	0.25	173

Figure 10: Question 5 adapted from survey report by Qualtrics

Q5 - How often do you use TikTok for both viewing or creating content?
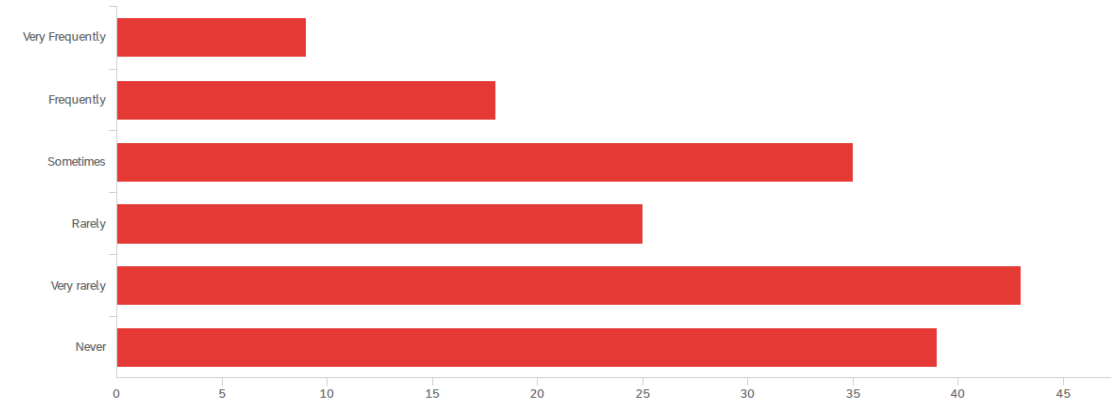
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I use/have used TikTok	1.00	6.00	4.14	1.51	2.27	169

Figure 11: Factor loadings

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Challenge_1 <- Challenge	0.806	0.801	0.051	15.748	0
Challenge_2 <- Challenge	0.899	0.901	0.013	70.833	0
Challenge_3 <- Challenge	0.75	0.746	0.064	11.686	0
Challenge_4 <- Challenge	0.838	0.839	0.031	26.61	0
Enjoyment_2 <- Enjoyment	0.906	0.906	0.017	52.435	0
Enjoyment_3 <- Enjoyment	0.915	0.912	0.02	44.735	0
Enjoyment_4 <- Enjoyment	0.864	0.862	0.026	33.444	0
Playfulness_1 <- Playfulness	0.762	0.758	0.041	18.717	0
Playfulness_2 <- Playfulness	0.821	0.815	0.04	20.599	0
Playfulness_3 <- Playfulness	0.827	0.826	0.025	33.217	0
Playfulness_4 <- Playfulness	0.824	0.82	0.041	20.041	0
Recognition-2 <- Recognition	0.968	0.968	0.008	128.73	0
Recognition_1 <- Recognition	0.951	0.951	0.012	79.648	0
Recognition_3 <- Recognition	0.914	0.913	0.03	30.049	0
Recognition_4 <- Recognition	0.956	0.956	0.011	86.782	0

Reward_1 <- Reward	0.842	0.843	0.023	36.313	0
Reward_2 <- Reward	0.883	0.881	0.018	49.727	0
Reward_3 <- Reward	0.805	0.801	0.035	22.894	0
Reward_4 <- Reward	0.797	0.798	0.035	22.462	0
Social influence_1 <- Social influence	0.87	0.87	0.022	39.741	0
Social influence_2 <- Social influence	0.903	0.904	0.019	47.919	0
Social influence_3 <- Social influence	0.843	0.842	0.035	24.298	0
Social influence_4 <- Social influence	0.868	0.867	0.024	36.311	0
Willingness to interact_1 <- Willngness to interact	0.889	0.89	0.019	46.89	0
Willingness to interact_2 <- Willngness to interact	0.869	0.869	0.026	33.404	0
Willingness to interact_3 <- Willngness to interact	0.911	0.911	0.015	61.505	0
Willingness to interact_4 <- Willngness to interact	0.901	0.9	0.018	49.862	0
Enjoyment_1 <- Enjoyment	0.832	0.829	0.037	22.733	0

Figure 12: Specific indirect effect table

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Challenge -> Enjoyment -> Willngness to interact	0.012	0.01	0.016	0.76	0.447
Reward -> Enjoyment -> Willngness to interact	0.079	0.073	0.058	1.354	0.176
Challenge -> Playfulness -> Willngness to interact	-0.017	-0.019	0.026	0.666	0.506
Reward -> Playfulness -> Willngness to interact	0.169	0.175	0.068	2.475	0.014
Challenge -> Recognition -> Willngness to interact	0.024	0.024	0.022	1.115	0.265
Reward -> Recognition -> Willngness to interact	0.1	0.1	0.049	2.045	0.041
Challenge -> Social influence -> Willngness to interact	0.083	0.082	0.04	2.08	0.038
Reward -> Social influence -> Willngness to interact	0.179	0.18	0.062	2.881	0.004

Figure 13: VIF (collinearity)

Challenge_1	1.865
Challenge_2	2.299
Challenge_3	1.664
Challenge_4	1.886
Enjoyment_2	3.097
Enjoyment_3	3.702
Enjoyment_4	2.674
Playfulness_1	1.548
Playfulness_2	1.878
Playfulness_3	1.765
Playfulness_4	1.805
Recognition-2	8.862
Recognition_1	6.65
Recognition_3	3.833
Recognition_4	6.648
Reward_1	2.777
Reward_2	3.189
Reward_3	1.866

Reward_4	1.807
Social influence_1	2.675
Social influence_2	3.309
Social influence_3	2.442
Social influence_4	2.5
Willingness to interact_1	2.931
Willingness to interact_2	2.451
Willingness to interact_3	3.337
Willingness to interact_4	2.965
Enjoyment_1	1.978

Figure 14: Model fit

	Saturated Model	Estimated Model
SRMR	0.067	0.104
d_ULS	1.818	4.416
d_G	0.915	1.093
Chi-Square	764.191	841.746
NFI	0.807	0.787

Figure 15: Descriptive statistics

	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness	Number of Observations Used
Challenge_1	2.954	3	1	5	1.236	-0.861	0.11	151
Challenge_2	2.854	3	1	5	1.268	-0.895	0.218	151
Challenge_3	3.212	3	1	5	1.253	-0.983	-0.021	151
Challenge_4	2.854	3	1	5	1.236	-0.833	0.387	151
Enjoyment_2	2.311	2	1	5	1.105	-0.024	0.785	151
Enjoyment_3	1.974	2	1	5	0.942	1.903	1.255	151

Enjoyment_4	2.291	2	1	5	0.932	0.514	0.724	151
Playfulness_1	2.642	2	1	5	1.263	-1.072	0.263	151
Playfulness_2	1.881	2	1	5	0.949	1.71	1.276	151
Playfulness_3	2.358	2	1	5	1.076	-0.374	0.407	151
Playfulness_4	1.848	2	1	5	0.995	1.739	1.371	151
Recognition-2	2.252	2	1	5	1.251	-0.204	0.844	151
Recognition_1	2.238	2	1	5	1.238	-0.113	0.848	151
Recognition_3	2.331	2	1	5	1.222	-0.182	0.816	151
Recognition_4	2.199	2	1	5	1.191	0.144	0.94	151
Reward_1	3.033	3	1	5	1.299	-1.13	0.048	151
Reward_2	3.119	3	1	5	1.281	-1.011	-0.092	151
Reward_3	2.536	2	1	5	1.321	-0.762	0.591	151
Reward_4	2.556	2	1	5	1.232	-0.639	0.47	151
Social influence_1	2.795	3	1	5	1.214	-0.75	0.424	151
Social influence_2	2.901	3	1	5	1.222	-0.838	0.28	151
Social influence_3	2.728	3	1	5	1.266	-0.864	0.347	151
Social influence_4	3.06	3	1	5	1.135	-0.543	0.019	151
Willingness to interact_1	3.298	3	1	5	1.291	-1.167	-0.068	151

Willingness to interact_2	2.921	3	1	5	1.345	-1.138	0.163	151
Willingness to interact_3	3.119	3	1	5	1.286	-1.044	0.001	151
Willingness to interact_4	2.709	3	1	5	1.269	-0.936	0.309	151
Enjoyment_1	2.49	2	1	5	1.19	-0.353	0.691	151

Figure 16: Supported and non supported hypothesis in the conceptual model

Figure 17: Question 11 adapted from survey by Qualtrics

Figure 18: Correlation table

	Enjoyment_1	Enjoyment_2	Enjoyment_3	Enjoyment_4	Playfulness_1	Playfulness_2	Playfulness_3	Playfulness_4	Recognition_1	Recognition_2	Recognition_3	Recognition_4	Social influence_1	Social influence_2	Social influence_3	Social influence_4	Reward_1	Reward_2	Reward_3	Reward_4	Challenge_1	Challenge_2	Challenge_3	Challenge_4	Willingness_1	Willingness_2	Willingness_3	Willingness to interact_4
Enjoyment_1	1																											
Enjoyment_2	0.66	1																										
Enjoyment_3	0.668	0.791	1																									
Enjoyment_4	0.582	0.716	0.771	1																								
Playfulness_1	0.43	0.493	0.466	0.511	1																							
Playfulness_2	0.486	0.604	0.567	0.564	0.528	1																						
Playfulness_3	0.541	0.519	0.48	0.451	0.484	0.574	1																					
Playfulness_4	0.572	0.706	0.653	0.583	0.494	0.584	0.571	1																				
Recognition_1	0.55	0.541	0.488	0.456	0.33	0.374	0.408	0.503	1																			
Recognition-2	0.567	0.547	0.478	0.437	0.371	0.394	0.44	0.515	0.91	1																		
Recognition_3	0.531	0.547	0.474	0.439	0.364	0.308	0.384	0.461	0.802	0.846	1																	
Recognition_4	0.511	0.532	0.471	0.455	0.373	0.402	0.425	0.523	0.884	0.904	0.829	1																
Social influence_1	0.482	0.482	0.441	0.369	0.41	0.353	0.533	0.511	0.592	0.609	0.497	0.587	1															
Social influence_2	0.48	0.518	0.441	0.415	0.363	0.333	0.465	0.429	0.532	0.523	0.483	0.528	0.776	1														
Social influence_3	0.493	0.501	0.455	0.421	0.267	0.337	0.446	0.493	0.418	0.411	0.409	0.383	0.576	0.689	1													
Social influence_4	0.43	0.445	0.435	0.409	0.459	0.333	0.487	0.442	0.466	0.465	0.444	0.467	0.638	0.678	0.717	1												
Reward_1	0.525	0.468	0.455	0.451	0.512	0.342	0.48	0.429	0.502	0.553	0.448	0.518	0.609	0.519	0.469	0.605	1											
Reward_2	0.474	0.512	0.392	0.387	0.469	0.393	0.498	0.461	0.529	0.555	0.487	0.545	0.616	0.553	0.465	0.551	0.797	1										
Reward_3	0.482	0.489	0.448	0.389	0.361	0.41	0.331	0.435	0.63	0.611	0.563	0.673	0.469	0.427	0.36	0.416	0.503	0.573	1									
Reward_4	0.51	0.525	0.435	0.435	0.405	0.544	0.445	0.426	0.495	0.528	0.515	0.521	0.506	0.476	0.483	0.464	0.485	0.554	0.622	1								
Challenge_1	0.331	0.326	0.306	0.27	0.206	0.227	0.262	0.301	0.41	0.414	0.374	0.438	0.444	0.348	0.305	0.285	0.533	0.518	0.51	0.447	1							
Challenge_2	0.535	0.538	0.507	0.423	0.385	0.393	0.441	0.534	0.524	0.591	0.527	0.568	0.626	0.521	0.495	0.494	0.642	0.667	0.592	0.501	0.638	1						
Challenge_3	0.281	0.196	0.235	0.197	0.19	0.211	0.214	0.18	0.245	0.245	0.261	0.242	0.394	0.403	0.329	0.419	0.451	0.442	0.323	0.258	0.524	0.582	1					
Challenge_4	0.341	0.431	0.406	0.33	0.255	0.307	0.184	0.305	0.49	0.507	0.505	0.569	0.523	0.543	0.373	0.488	0.51	0.563	0.624	0.501	0.555	0.645	0.52	1				
Willingness to interact_1	0.448	0.52	0.426	0.418	0.338	0.327	0.481	0.468	0.498	0.495	0.425	0.453	0.571	0.493	0.459	0.517	0.654	0.699	0.512	0.433	0.478	0.646	0.362	0.467	1			
Willingness to interact_2	0.467	0.507	0.453	0.489	0.432	0.418	0.551	0.461	0.529	0.567	0.484	0.543	0.578	0.467	0.408	0.493	0.616	0.597	0.438	0.474	0.38	0.545	0.316	0.411	0.697	1		
Willingness to interact_3	0.472	0.584	0.473	0.485	0.365	0.397	0.577	0.526	0.523	0.545	0.481	0.499	0.567	0.538	0.553	0.549	0.584	0.634	0.453	0.455	0.362	0.632	0.338	0.398	0.768	0.71	1	
Willingness to interact_4	0.56	0.57	0.542	0.481	0.435	0.505	0.591	0.537	0.516	0.542	0.455	0.485	0.584	0.549	0.524	0.541	0.576	0.612	0.48	0.51	0.384	0.62	0.343	0.429	0.728	0.704	0.768	1