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Dating Sims: A Threat to Human relationships or a New Digital Intimacy?

Xinyuan Qian

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Abstract

The increased technological development that has spanned the world and Asia in particular paved the way for a new cultural and social phenomenon; the rise of dating sims. The following research paper endeavors to examine the implications of dating sims on society and the individual. This research uses case studies as the medium of data collection, data synthesis, and presentation to conclude the impact of dating sims. Dating sims, also known as otome games for women and bishojo games for men, are games where players court virtual characters that are either male or female in a heterosexual game to form a romantic bond that lasts for eternity. This rise of dating sims has been entitled as a form of techno-intimacy. It has its market mainly located in East Asia, first arising from Japan but with roots in South Korea, China, and now even the West concerning the United States of America. Historically, the rise of dating sims was seen as a subtle form of entertainment with limited social-cultural implications. However, present outcomes stemming from almost two decades of otome and bishojo games reveal a drastic implication for this new form of techno-intimacy. The consequences of extreme interactions with dating sims are being noticed, particularly in East Asia, in many ways. Nations such as Japan have seen a drastic decline in the number of birth rates recorded in the country. Other impacts associated with dating sims noticed include increased social withdrawal by players, contraction of gaming disorder, and finally, depression.

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Chapter 1: Introduction

1.1 Overview

In Japan, the home of modern video and simulation games, the distribution of such products began in Tokyo. In the 1970s, a period that saw the end of military occupation, social upheaval, and economic recovery, abundant consumerism began to occur (Galbraith, 2011). This period grew considerably, leading to it being termed the "post-postwar society" by some researchers (Galbraith, 2011). During the time, Tokyo, the home of video game creation, was the world's most saturated urban centre with extensive advertisements, image production, design, and packaging, including seductive images and screens (Galbraith, 2011). Through slogans such as "*Living together with robots*," private groups, individuals, universities, and industry started developing, supplying and servicing companion machines while integrating them into modern society and everyday life (Galbraith, 2011).

Japan has historically been ambivalent to the risks posed by technology. A leading nation in terms of adopting new technologies, Japan paved the way for visual novels; also known as simulation dating games, a trend that began in the early 20th century. Simulation dating games (or dating sims) are based on the idea of cultivating intimate relationships between real people and virtual characters or beings. Although dating sims brings about a certain level of emotional attachments, the responses derived from the virtual characters are often scripted. Still, they tend to come out as being sincere and dynamic. The leading aim of dating simulation games is for both participants (the player and the virtual character) to cultivate an emotionally fulfilling relationship that allows them to live happily ever after.

The earlier forms of male dating sims borrowed from *manga* were called *Bishojo*, literally translating to 'beautiful young girl.' These kinds of games had the virtual character strictly being played by a woman *Bishojo* served to inspire the creation of female dating sims. Dating sims for women and girls are known as *Otome games*, translating to 'girl

games.' Otome games have the virtual character being played strictly by a male character. These kinds of game support the Confucian belief of generational continuation through heterosexual relationships and marriage creating and dispensing the assumption that all intimate relationships should feature a semblance of heterosexuality (Qian, 2019).

The unofficial history of dating sims dates back to 1966 when Joseph Weizenbaum developed the *ELIZA*. This computer program was designed to create seamless and interactive interactions between the virtual character and the user. The success of this program saw its adoption in other games such as the *Fallout* series and later into dating sims such as *HuniePop*, *Dandelion*, and *Nameless*, to mention a few. For several years, the rise in the adoption of dating simulation games has come with the instinctual fear that such games will lead to an erosion of new relationships, interaction, and dating culture.

Psychologists and social enthusiasts have hinted that the rapid adoption and embracement of technology in every facet of life, especially in dating and emotional interaction, has led to the erosion of traditional human interaction. Tentatively technology, despite its benefits, is seen as leading to the alienation of humans from one another. The leading nation that has formed this imaginative technology lustration is Japan, with its quintessential embrace of dating simulations. This situation has led to the formulation of "otaku," referring to people in Japan that are children of technology and media (Garner, 2019). Such people have limited social interaction skills but tend to be well-skilled and versed in technology. This interaction became evident in 2009, when a Japanese citizen officially married a video game character in December 2009 (Lah, 2009).

1.2 Background of Research Problem

The adoption dating sims has led to a scenario where people have withdrawn from society and legacy human interaction and relationships favoring virtual partners. A trend that dates back to Japan, the situation has evolved from being a localized trend to an international

sensation spreading into South Korea, China going as far as Europe and the United States of America. Earlier, considered as an innovative, lackluster but peaceful way for adults to learn how to interact with the opposite sex while passing the time, the issue has far from becoming less harmful. In nations that have keenly embraced this program and practice of dating simulations, catastrophic implications have been noticed from both male and female personalities concerning Japan. In Japan, and South Korea, the rate births has declined significantly (0.05% for South Korea and 1.36% for Japan), paving the way for whole generations to disappear (World Bank, 2019; Statista, 2021). All countries see significant losses in labor and population size. Based on the information illustrated herein, the paper examines whether these effects mentioned are an isolated issue or are being replicated in other countries that have also embraced this gaming genre.

1.3 Problem Statement

As Axelsdóttir (n.d.) reveals, the preoccupation with living out relationships and romantic fantasies on dating sims has led to players withdrawing from ordinary society and even absconding from normal relationships offered by their peers in and out of school and work. Because dating sims follow a linear approach in terms of conversation and responses, players are adamantly denied the joys of regular interaction with peers of similar and different genders. This predicament has created a situation where most dating sim players are losing unconsciously of their conversations skills because they are not being trained adequately through the dialogue trees used in dating sims. Other factors that dating sim players are being robbed include their opinion of society, and their outlook on life. The absence of social interaction either willingly or unwillingly has long-term consequences on the proponents. Players completely immersed in dating sims cannot be expected to function, perform, interact, and respond like people who enjoy and carry out regular interactions with

their peers. Though a less acknowledged form of art, social skills are a learned experience that hinges on regular interaction to maintain and grow a person's potential.

Similarly, the ability of people to create and sustain long-term but inviting, fulfilling and rewarding relationships primarily hinges on a person's conversation skills that are harnessed with time and consistent practice as opposed to their gender or character. Because of these implications and more, the researcher has been compelled to examine the effect of being engrossed in dating sims on society and the practicing parties.

1.4 Research Objectives

The study focuses on examining the impact of dating sims on society. The specific objectives for the study are:

- i. Provide the history and reasons behind the rise of dating sims, particularly in Asia.
- ii. Provide an overview of the dating sim industry and the trends taking place now and those expected in the future.
- iii. Identify and reveal the implication that dating sims have on a player and whole societies that have embraced this technology and alternate relationship building and interaction.

1.5 Research Questions

- i. What prevailing factors are enabling and supporting the creation of dating sims?
- ii. What target demographics and gender do date sims target?
- iii. Has the increased popularity of dating sims impacted society?
- iv. What future trends are developing in the dating sim market niche?

1.6 Significance of the study

The study aims to identify the impending implications upon society on the rapid usage and embrace of dating sims as the primary and favorable substitute of everyday relationships. As dating sims becomes a substitute for formal relationships, various implications can be expected to manifest on the participants and society. Such an action, though seemingly harmless, will carry with it significant societal implications either in the short run or the long term. This paper attempts to delineate what these implications are and how they will unravel.

The study will help add to the existing research gap on the impact of dating sims on society and even nations. As a trend that emerged in the late 20th century, very few researchers have devoted their time and effort to assess the impacts of having and supporting a broad uptake in dating sims by men and women. This is despite the trend crossing both national and regional borders and spreading as far as America. Hence, it becomes essential that this predicament is investigated through an in-depth but academic lens to understand whether the effects noticed in Asia could be replicated in other non-Asian nations.

Aid in understanding what makes adults, both male and female, feel more at ease in playing dating sims than interacting with their peers. It must be understood that there is a myriad of factors that have created and manifested an environment conducive for dating sims and their subsequent creators to emerge and thrive. To know how to react to this issue, which will be growing in the research, it will be necessary to identify factors that allow the genre to thrive.

1.7 Scope of the study

The scope of the study was limited to the use of primary data gathered from an online survey. Owing to the intrinsic nature of having, practicing, and confessing relationships with virtual characters instead of real human beings, many people were unwilling to disclose their

status about dating sims. This issue was resolved by opting to use an online platform that would still offer participants some semblance of personal security absent of any form of emotional or psychological trauma. The primary data utilized ten research participants from the online platform *Survey Monkey*.

Chapter 2: Literature Review

The following chapter will be an in-depth induction and assessment of literature about the study topic of dating simulations. An accurate interpretation and representation will be undertaken during literary analysis. All material presented herein will serve the role of value addition for the greater integrity of the paper. Additionally, this section will form a cornerstone for the succeeding chapters.

2.1 Theoretical Framework

Three theories attempt to explain the fascination and rise in trend in the adoption of dating simulation games, especially in Asia. The three theories include; *Cultivation Theory* and *Parasocial Relationship theory*. These theories discuss the leading factors that inspire participants to embrace, play and eventually cultivate relationships with virtual characters in dating simulation games.

2.1.1 Cultivation Theory

According to Lakshmikanth (2020) the Cultivation Theory developed by George Gerbner asserts that individuals exposed for prolonged periods to media have their perception, beliefs, and attitudes eventually altered from the actual trends and situations ongoing in the real world. Based on the theory, people who watch television for prolonged timelines are more likely to adopt tendencies adopted within the related media channel than outside forces. The idea was postulated following a study conducted by Gerbner called 'Culture Indicators' to evaluate the long-term implications of watching television excessively. In the survey, Gerbner and his team assessed the consequences of watching repeated and continuous episodes on CBS, NBC, and ABC during 1967 and 1968. The researchers uncovered that these channels aired persistent episodes of violence. However, the violence depicted on these channels was unrealistic while also overestimating the extent of these

violent occurrences. Consequently, the findings revealed that people who watched shows aired on these channels became more violent in an unusual manner. However, it is valuable to note that criticism exists pertaining to the cultivation theory in that the findings of this theory cannot be generalized and applied to entire groups of people or societies.

Based on this theory, the increased watching of television media by Asian cultures, notably, the Japanese in tandem with playing video games, could have potentially contributed to a distorted image of intimacy and interaction among pro-dating sim players. The heightened level and ability of video games, primarily dating simulation, to create and replicate real-life conditions and characteristics have made it possible for relationships formed and carried out on these platforms to seem realistic to the willing participants. The immersive nature coupled with interactivity offered by dating sims intensifies the experience and feelings provided by such games luring the players into long-term interactions and, finally, relationships that substitute traditional relationships. The perspective of an eternal relationship between a virtual character and an individual could have been promoted by the sense of eternity posed by video games compared to real-life relationships.

2.1.2 Parasocial Relationship Theory

The parasocial relationship theory is divided into two subgroups; parasocial relationships and virtual parasocial relationships.

2.1.2.1 *Parasocial relationship*

According to Lou & Kim (2019), in the subgroup; parasocial relationship (PSR), these kinds of affairs are one-sided relationships with one person extending their emotional interest, time, and energy to another persona that is often wholly unaware interested party's existence. These relationships are often seen with sports teams, sports personalities, athletes, musicians, radio and television presenters, and celebrities. The theory of parasocial

relationship was developed to examine the relationship between media personas and their audience. Cohen & Holbert (2018) Parasocial Interaction (PSI) is established when media users take and assume that the media personality is a member of their subgroup, causing them to have interpersonal relationships with the media persona. This type of relationship is both a psychological phenomenon as well as a media phenomenon. PSI is a media phenomenon because it involves interpersonal communication brought relayed by the media while also involving media personalities. On the same, PSI is a psychological feature because media users extend interaction with media personalities on their own accord. PSI extends to the dating simulation because the virtual personas illustrate media personalities relayed from media devices; smartphones, desktops, or laptops, all of which are classified as media devices. The fascination with virtual dating partners found in dating sims can be alluded to as similar to what is noticed with media personalities. PSR was evaluated and found to occur in two types; para-friendships and para-romantic love, and was highly associated with adolescents' perspectives of romance, which influenced their relationships. This fact has been replicated in dating sims to take romantic PSR as their core element, supporting the PSR theory.

2.1.2.2 Virtual Parasocial Relationships

Palomba's (2020) paper on virtual parasocial relationships state that relationships have spanned from television and moved forward into the internet and online media, which has elevated parasocial relationships with famous online personalities, including video game streamers. This stems from the argument that parasocial relationships can also occur with virtual characters similar to what is seen in dating sims. Concerning media personalities, PSR involves two roles, viewing the personalities as their identities or companions (Hakim & Liu, 2021). The relationship between virtual game characters and players with dating sims and other games reflected the roles mentioned above. Dating sims allow players to adopt a

first-person perspective, consequently inculcating their whole emotions into the game. The player assumes the virtual gaming character as a natural person instead of a non-entity. In playing dating sims, players choose an avatar whom they identify with, either male or female. At the same time, the game provides a similar character or avatar, which are viewed and presented as potential partners or the player's allies. In this manner, a parasocial relationship is formulated between the players and the game characters or avatars. Importantly, affection, communication, and intimacy are three essential elements in the building block for parasocial relationships. Repeated and prolonged game exposure (increased playtime) leads to an increase in all the three factors mentioned earlier between the player and their game avatar, leading to enhanced parasocial interactions and relationships between players and virtual game characters (Hakim & Liu, 2021).

2.2 History of simulation games

According to Galbraith (2011), the history of dating sims dates back almost two decades ago. In dating sims, the players, either male or female, control either a male or female avatar and attempt to woo a character of the opposite sex using a string of responses during conversations meant to evoke emotional attraction. The objective of dating sims is to either have sexual intercourse or create a lasting relationship with either of the virtual characters before the culmination of the game. Several male and female characters typically appear in a given dating sims, all having their own distinctly unique branching dialogues and stories.

Dating sims emerged as an easy and convenient alternative for inexperienced adults to learn about relationships forming, bonding and sustainance. The ease of dating sims to offer players an alternate but realistic and immersive universe to play out their relationship fantasies led to many absconding from alternate but legacy relationships favoring the connections provided by these games. Having been in existence and play for almost two

decades, the implication of dating sims has begun being noticed, particularly in Asia nations where the game has a wide following from both young and old alike.

2.3 Historical Causes behind Invention of simulation games

Cocking (2017) attests that the primary causes for the invention of dating sims were to provide players with the opportunity to experience a realization of their love and relationship fantasy in a safe environment that players control. Dating sims allow players to engage and indulge in heterosexual partners that they would not usually have the ability to choose, interact and form emotional, psychological, and romantic bonds with in real life. Matchmaking traits are pervasive in mainstream dating sims, especially since most protagonists are customizable blank characters easily molded into the preferential characteristic of the player. This is the seductive reason why most players find dating sims more significant than what is offered in real life.

Webber (2015) states that dating sims operate on a comprehensive and more perfected storyline often borrowed from playable novels and induct players into an alternate reality that is appealing and safe. Players that choose to register and immerse themselves into this alternate reality are allowed to live out their dating fantasies, date strangers without any implications, including animal boyfriends such as 'pigeons' as in the case of *Hatoful Boyfriend*; a dating sim where girls court and date boyfriends that are pigeons (Webber, 2015).

2.4 Value Addition

According to Japan Info (2016), dating sims provide players with three benefits. One benefit is teaching players how to initiate, respond, and sustain interactions with the opposite sex. Most people fear running out of talking points during interaction with the opposite sex. However, dating sims provide solutions to these challenges by giving players cues to

respond to sustain a prolonged but inviting and enjoyable relationship. Additionally, dating sims reveal ways for players to show interest in the other party without appearing overtly self-imposing; because most dating sims carry the feature of randomly quizzing the partner on their hobbies and likes. Through such features, players learn to use such information to determine where to have their dates with their significant other, including types of gifts to buy, demonstrating that their affection and interest are genuinely authentic.

Dating sims provide the benefit of an avenue for players to share their love through emotional attachment (Japan Info, 2016). Dating sims run based on scores. Scores can rise or fall depending on the player's choice of responses, types of gifts given, and frequency of dates. The scores measure the player's propinquity (a measure of how close a player is to their virtual partner and thus a measure of their fondness). Such sims teach players how to find love, how to maintain it through time. Usage of notes, text messages, phone calls, and emails are all tools that help the player increase their propinquity, a strategy that is easily replicated in the real-life world.

The art of gift-giving is an acquired skill dispensed only by playing dating sims (Japan Info, 2016). Gift giving is a premise lauded extensively in dating sims whereby players can only offer their virtual partners gifts after achieving specific scores. Such an aspect is borrowed from real-life scenarios. Dating sims teach the players that the gifts don't need to be large nor expensive for them to be memorable, an issue that most people often are not aware of in real life.

2.5 Design of dating sims

Dating sims feature various design approaches that make them more alluring and applicable to all characters regardless of cultural or sexual orientations (Malpass, 2020). A definitive design that is noticeable in most dating sims is the usage of *Branching Dialogue*.

2.5.1 Branching Dialogue

Ellison (2008) states that branching dialogue is whereby the player is provided with a set of questions by their virtual character or partner for which they answer. The players read a dialogue posted by the avatar and decide how to respond. Players' answers can be simple such as a Yes or No response, to more complex ones often stretching to three-line paragraphs such as those seen in the Japanese dating sim *Tokimeki Memorial* (Ellison, 2008). In such games, which involve branching dialogue, the player's response affects the avatar's attitudes in countless ways, with the avatar choosing which response best suits the player's reaction.

2.5.2 Role Playing

Ahmad (2019) observes that dating sims adopt a predetermined set of mechanics that is organized along the basis of role-playing. These mechanics follow procedures and rules that regulate the game's performance and the player's conduct by regulating goals and achieving them through role-playing and the gamer (either male or female) as the protagonist (O'Donnell and Banger, 2020). Dating sims differentiate themselves from other forms of entertainment by using mechanics and their role in complimenting the elements of storytelling, aesthetics, and technology.

2.5.3 Sound

Sound is a critical element found in dating sims. Dating sims adopt and use a variety of sounds such as environmental sound effects, UI sounds and music. The environmental sound effects are used to complement the scenes in the game while also enhancing dramatic and narrative story acts. Music is used to help the player in emotionally connecting with the game. UI sounds complement the different actions of the player. UI Sounds are also adopted to increase or lower dramatic tension in the game.

2.5.4 Attributes of Motivation

Ahmad (2019) states that all simulations have the attribute of motivation. This refers to the provision of rewards to entice the player to go on in their pursuit of play. Motivation serves to activate efficient and adaptive cognitive strategies necessary in memory retention and organizing information.

2.5.5. Color Co-ordination

Malpass (2020) reveals that dating sims adopt a color-coordinate approach. Because visual novels follow large amounts of plotlines, these games assume a heavy application of pink color in the form of soft pastel pink. Based on the color theory, romance as a theme is represented and envisaged by the color pink but with varying saturations to display different levels of light-heartedness, the different levels of plot intensity, and the degree of light-heartedness. The secondary colors adopted in dating sims include white for airiness and purity and gold for achievement, success, and elegance.

2.5.6 Simple game interface

Barr (2018) discloses that similar to how websites and applications are designed, dating sims adopt a simplified game interface. This practice is necessary because such games are already invested in heavy visuals; hence a simple interface is assumed to assist in making the game easy to absorb for the player, including influencing a positive mood on the player (Tompowsky, 2014). Simple icons and buttons are used as a substitute for text while also in sparse quantity to allow the player to concentrate better on the visuals.

2.6 Market for dating sims in America and Asia

As Liang (2019) reveals, the market for dating sims was traditionally focused on Asian and, in particular, Japanese male gamers but has diversified to target and include both male and female gamers not only in Japan but now South East Asia (China and South

Korea), where the gaming demographic has been rising in recent decades. Presently, there are more dating sim enthusiasts in Asia than America, and now the female demographic has also come of age in the same respect. In China, for example, there are 544 million mobile gamers, with half of this number being female gamers. In the traditional landscape, the male clients were often young boys who suffered from various insecurities and were mostly introverted and immature. However, with time, this trend has changed, and now the market of dating sims has grown to include women. The game *Love and Producer*, a Chinese dating sim, was released in December 2017 and achieved 2 million daily users by February of the following years (Huang, 2018). The game, which is strictly focused on capitalizing on female gamers, achieved \$ 32 million worth of sales in its second month of operation alone (Huang, 2018). In 2018, the game was termed China's top game among its female demographic. The leading protagonist is a female producer tasked with saving her father's ailing production company by preventing the decline of an entire television show. During this occupation, the female producer develops romantic relationships with the game's four main male characters; Li Zeyan-a CEO and founder; Bai Qi- a police officer registered with special forces; Xu Mo- an intelligent scientist; and finally, Zhou Qiluo, a pop star. The game's success was demonstrated when, in 2018, one player paid for an LED billboard sign worth £29,000 to wish Li, a CEO and founder in the game, a happy birthday, despite the character being virtual (Liang, 2019).

2.7 Potential and trend for dating sims

According to Delaney (2021), dating simulators have proven to be an increasingly popular activity and genre among adults, both young and old, paving the way for a new trend that is set to be taking place; the adoption of Virtual Reality (VR) and Augmented Reality (AR). Presently, VR and AR usage has added \$ 46.4 billion to the world economy (Delaney, 2021). These same technologies are projected to add \$ 1.5 trillion to the global GDP by

2030. Although these technologies are predominantly being used in the health care and tourism industries, their practice is also predicted to be adopted widely in the gaming industry, including in dating sims. VR refers to simulations generated by computers whereby a person interacts with an immersive environment of artificial 3D using electronic devices like goggles fitted with a wide array of sensors (Hamacher et al., 2016). Contrastingly, AR utilizes technology for superimposing images, sounds, text, and information on our world. Presently, there are 82 million VR headsets in the market as of 2020 (Delaney, 2021). By 2030, more than 20 million jobs will be involved in VR and AR, either directly or indirectly (Delaney, 2021). As the world continues to embrace VR and AR, its adoption prices can only be expected to drop with time. This will pave the way for its broader adoption in dating sims.

Increased adoption of AI (Artificial Intelligence) will be expected to take place across the dating sim industry. As technology and computing power continues to develop, it is predicted that more dating sims will embrace more complex AI to power their systems. One example is *AI Powered Date Simulator* (Menon, 2018). This simulator uses AI formed from machine learning algorithms to replicate real-life scenarios that players encounter as they carry out their daily routines.

2.8 Impact of Dating Sims

Dating sims have had a significant effect on society, particularly in Asia. An often-honest method for passing the time and augmenting the players' sociability skills, specific effects have begun to be noticed in a broader context.

2.8.1 Social Withdrawal

According to Misra et al. (2020) simulation games such as dating sims have aided in the erosion of traditional communication and interaction in society, causing social

withdrawal and escape. Similar to other video games, dating sims have become an alternative yet interactive approach to social escape. Many people have embraced simulation games to avoid the intrigues of social interaction (Holtz and Appel, 2011). Unlike competitive multi-player games that sometimes require people to partner with other real-life characters regardless of geographic predisposition, single-player simulation games allow the user to be secluded from outside elements, including persons (Quwaider et al., 2019). This leads to a certain degree of de-personalization whereby online relationships seem more real and genuine than real-life relationships that can often be abstract, rigid, and unpredictable. Because simulation games have evolved to provide immersive and intensely realistic backgrounds and storylines, they give the players an almost alternate world to be themselves without the fear of repercussions (Misra et al. 2020).

2.8.2 Distortion of Reality

Crawley (2014) concludes dating sims lead to the distortion of people's perception of reality. According to psychologist Angela Ortiz de Gortari, video game players, including dating sim players, witness a phenomenon known as GTP (Game Transfer Phenomenon). GTP includes after-effects of game interaction and involves visual misperceptions and pseudo-hallucinations, worsening with increased video game exposure. The distortion, in reality, is made worse by the degree of the player's passion and the degree of immersion offered by the game (Beckhusen, 2016). Because dating sims compel players to determine the path of the game and storyline, they no longer become players but creators, forcing the dating sims to no longer be viewed as games but rather an alternate reality. The level of immersion offered by dating sims has been found to affect other players to the extent that they are no longer capable of deciphering what is real from what is virtual.

2.8.3 Declining Birth Rates

According to Gramuglia (2017), declining birth rates and marriages in some Asian nations, particularly Japan, have been attributed to the broad uptake in the download, registration, and usage of dating sims in tandem with prolonged working hours. In 2016, Japan's birth rate dropped to below 1 million, indicating more deaths than births. Based on research conducted by Japan's National Institute of Population and Social Security Research, 70% of unmarried men and 60% of unmarried women aged between 18 and 34 years were found not to be in relationships, while approximately 50% of the country's population was found to be composed of virgins (Gramuglia, 2017). The leading reason for this predicament, according to the institute's research, was work. Though 90% of the Japanese population believes they will eventually get married and have children, the reality is that their work demands are currently pushing the deadline for this realization (Gramuglia, 2017). 22% of Japanese workers work over 50 hours per week, with some working for 18 hours and over daily (Gramuglia, 2017). The extended working hours and lack of social time have permeated the uptake in dating sims in these nations more so than others.

Japan undeniably has the highest uptake and usage of dating sims globally, even higher than China, a nation with a population 8-times larger than Japan. For the past ten years and more, Japan has recorded a historic decline in birth rates with increased death rates (Gramuglia, 2017). With a culture that embraces playing video games and reading manga while on transit to and from work, Japanese culture comes into perspective concerning their adoption of dating sims and the decline in the national birth rate. Although dating sims come in different languages, such as Mandarin and English, their uptake was widely embraced, particularly in Japan and other nations, including China. In such games, players reserve the right to choose a character that they would like to date from a vast pool of candidates whom they try to win their love and affection. Notably, certain games have a more romantic

storyline that completely engages the player. Most dating sims offer all kinds of scenarios that fulfill all individual players' preferences, including sexual connotations.

Predictively, the stresses associated with work have created an environment where the only available avenue for forming and enjoying relationships' emotional and psychological benefits is dating sims. Because dating sims are malleable and work with the player's schedules, they have become the alternative for real-life relationships. This has and is what continues to lead to declining birth rates (Gramuglia, 2017).

Chapter 3: Methodology

The methodology chapter aims to elaborate on the research processes and methods that the researcher applied to examine the impact of dating sims on societies where the game has a wide following. Besides the provision of the objective of this chapter, this section will address the research framework chosen for the study, including the merits as to why it was selected. The research framework will complement the research questions and objectives highlighted in the introductory phase of the study. According to Kumar (2019), the methodology section is one of the most poignant but essential parts of a research paper because it involved deciding and conceptualizing research decision that has sufficient magnitude to influence the direction, outcomes, and conclusion of the research.

3.1 Research Design

The research adopted a qualitative research design. Emphasis was laid upon the utilization of case study research strategy.

3.1.1 Qualitative Research Methods

The qualitative research design involves gathering, disseminating, and using non-numerical data such as texts, audio, and video to understand opinions, concepts, and experiences. This research method is ubiquitous when examining social sciences and humanities and subjects such as sociology and history. The qualitative research method used a case study research strategy for data collection. Case studies focus on assessing key issues relative to specific boundaries, organizations, groups, or situations. Case studies are divided into three categories. These categories include; descriptive case studies, exploratory case studies, and explanatory case studies. Explanatory case studies attempt to answer “how” and “why” questions. Descriptive case studies assess the sequence behind interpersonal

occurrences following a prolonged time since the occurrence of that took place. Exploratory case studies focus on finding answers to “who” and “what” questions.

3.2 Limitations of the research

The decision to use mono-method is data collection denied the paper with the benefits derived from gathering primary data using interviews. Preliminary data would have allowed the researcher to collect first-hand information concerning the research topic. However, the decision to use secondary data did not present the research with these benefits.

Secondary data entails several research biases that are unknown to the researcher. Because the researcher was not present in collecting the secondary data, some biases may have crept in that the researcher could not identify. As such, the adoption of secondary data left the research open to research biases from the findings.

Table 1: Case Studies

Title, Concept Categories	Keywords	Reference
A comprehensive study on the consequences of society's mobile needs.	Mobile Apps and the ultimate addiction to the Smartphone.	Beckhusen, B., 2016.
Addiction to smartphone games	Using smartphone game components to create an addiction	Holmgren j., 2016
Perceived addictiveness of smartphone games: A content analysis of game reviews by players.		Balakrishnan, J. and Griffiths, M.D., 2019
Insights into: Asia's Top Mobile Markets-China, Korea, Japan		Huang, J., 2019.
Effects of Gaming on Children's Brains: Depression and Social Isolation		Landau, S., & Nguyen, T., 2019
How does neighborhood quality moderate the association		Kim, H.H.S. and Ahn, S.J.G., 2016.

between online video gameplay and depression? A population-level analysis of Korean students.		
The attentive brain: insights from developmental cognitive neuroscience.		Amso, D., & Scerif, G. (2015).
A meta-analysis of pathological gaming prevalence and comorbidity with mental health, academic and social problems.		Ferguson, C.J., Coulson, M., and Barnett, J., 2011.
Low fertility trend in the Republic of Korea and the problems of its family and demographic policy implementation.	Korea Population and Economics	Seo, S.H., 2019.
The association between video gaming and psychological functioning.		Von Der Heiden, J.M., Braun, B., Müller, K.W. and Egloff, B., 2019

Chapter 4: Findings and Discussion

The chapter will present the primary findings derived from the methodological approaches used in the study. The results of this chapter will be drawn from the case studies while connecting them and also drawing similarities where prevalent between them and the points that were discussed in the literature review. The following chapter involves the deductive and in-depth assessment of the findings and discussion. This section will be the final chapter in the realization of the research's objectives. All research questions highlighted in the paper are addressed in this section. The high density and concentration of dating sims in Asian nations such as China, South Korea, and Japan made it increasingly necessary to examine its implications on society, especially with the changing demographics of younger people. As a sub-genre for visual novels, dating sims have an almost cult-like following among its ardent players. With the demographic shift in Asia and the declining birth rates across Asian nations with a broad uptake in dating sims such as Japan, South Korea, and China, an assessment of the implication and role of this game on this trend was undertaken with an emphasis on four questions. The four questions, first highlighted in the introductory section of the research, are addressed in this chapter.

4.1 Has the increased popularity of dating sims impacted society?

Commercial gaming is a venture and pastime developed in the 20th century from science exhibitions, and technology has gradually blossomed into an industry of its own with multiple players and a multibillion-dollar (Spring, 2015). At the heels of commercial gaming has been the rise of dating sims which has had a significant effect on Asian nations. A gaming genre that has been in existence for almost two decades, its implications have begun to be noticed among the younger generation. The repercussions of dating sims are seen in the

critical areas of; social withdrawal, the decline in birth rates, regression of sociability skills, and loss of contact with reality.

4.1.1 Decline in Birth Rates

Suzuki et al. (2020) states that excessive playing of simulations leads to social withdrawal, resulting in the absence of peer bonding and ultimately lack of marriages. For some time, psychologists have contemplated the belief that excessive gaming leads to psychological problems. According to Grinspoon (2020), the APA (American Psychological Association) revealed that gaming addiction leads to several complications on the player and particularly that of withdrawal, loss of the relationship, and loss of interest in other general activities.

Wang et al. (2019) reveals that there is a strong correlation between mobile game addiction and social anxiety leading many people to develop introverted natures that cause them to avoid social settings in preference of an introverted nature. Social anxiety is a state of tension that individuals experience when in social situations that they are not accustomed to. According to Wang, players that have a great degree of gaming addiction tend to suffer the most from social anxiety.

Lo, et al. (2005) carried out research investigating the impact of simulation gaming on players' interpersonal relationships in correlation with their anxiety. According to the findings, simulation players' interpersonal relationships were greatly undermined because of the social anxiety associated with social withdrawal. This correlates with Gramuglia's (2017) deductions recorded in the literature review that increased download and uptake of dating sims have decreased birth rates.

4.1.2 Social Withdrawal

Similar to other games that were introduced in the late 20th century, dating sims and gaming, in general, have become a cultural activity so prominent it overtook other forms of social activities leading to increased episodes of social withdrawal among a majority of players (Landau & Nguyen, 2019). The impact of games, primarily video games played on consoles and other media devices, gained significant attention as an area of research mainly focusing on children, who at the time were the primordial players of games. However, across time the fascination with games has transcended genders and ages.

According to Bediou et al. (2018), video games were a leading contributor to adverse psychological effects. One negative result of video games was that it led to in-depth psychological attachment with the game and medium of play, either phone or console leading to detachment and social withdrawal from colleagues, classmates, and peers. As Kim and Ahn (2016) revealed, people who opted to play games such as dating sims with an escapist mindset were more prone to suffering from negative implications of playing these games, such as social isolation.

With adults invested in giving much of their time and youthful years to virtual games and virtual worlds, they are skipping out on critical times crucial for forming and engaging in meaningful social experiences within the natural world that could aid in their development of adult character as social beings (Landau & Nguyen, 2019). Because the threshold of stimulus derived from dating sims and video games was proven to be higher than all other forms of physical or behavioral activities for certain people, certain young adults have altogether rejected other extracurricular activities favoring virtual games and friends (Balakrishnan and Griffiths, 2019). These actions have, in turn, culminated in them losing chances to socialize and make new friends while also slowly eroding their existing

social circles in favor of virtual friends and more playtime in virtual worlds as offered by dating sims (Von Der Heiden et al. 2019).

According to Beckhusen (2016), because the gaming industry has developed with the rise of innovations, particularly in the technology sector, a new breed of players such as competitive gamers has come with it. These people who play games for money have solidified the prospect that gaming is no longer a leisure activity but can also morph into a source of livelihood. With this change in philosophy and concept on gaming, the taboo with gaming for extended periods has dwindled, allowing gamers, especially non-competitive ones, a way to enjoy their hobby. Because of this, players have become more involved and engrossed in gaming, increasing their chances of becoming addicts.

Historically, the first simulations were simple; modern sims have become complex, mainstream, and commercialized, giving developers increased incentive to make their gaming applications more addictive (Wong et al., 2019). Additionally, simulations were made more accommodating to be played on any device regardless of computing and screen specifications while also now bearing better visual quality, all aiding addiction.

Despite proponents for gaming and gaming developers saying that excessive playing of simulations does not lead to addictions and social withdrawal, this proposition is only valid in multiplayer games. However, dating sims are single-player games, not multiplayer games. Because of this, it has been heralding the way for spawning new breeds of introverts by removing them from socially active and intrusive environments that demand social interactions from all who interact with it, both young and old, male and female (Beckhusen, 2016).

4.1.3 Distortion of Reality

Amso & Scerif (2015) reveal that isolation caused by simulation addiction leads to an increased dependence on the simulations that, in turn, degenerative neurological change that

leads to the player's disconnection from reality. These sentiments mirror the deductions made earlier by Crawley (2014) in the literature review. Simulation players who have an existing propensity to experience anxiety tend to harbor fears and worries concerning unrealistic beliefs and stories in their heads instead of moving towards reality. Despite gaming providing players with a quintessential space away from their fears and limitations, it removes these players from reality with time.

According to Dr. Victoria Dunckley, a gaming psychiatrist, gamers suffer from altered perceptions (Crawley, 2014). As Dunckley reveals, simulation gamers tend to feel as though they're in a game and experience environmental factors similar to the gaming environment in the form of vague paranoia, auditory hallucinations, and continued visual symptoms. In other cases, gamers experienced transient visual symptoms that were signs of brain stress, but these were under-reported.

A severe limitation to identifying the extent of gamers suffering from distorted reality is that very few people make an effort to report this phenomenon (Amso & Scerif, 2015). The phenomenon of distorted reality only becomes serious when the victims work in controversial areas of professions such as healthcare, surgery, operation of heavy machinery, or driving.

4.1.4 Depression

Horvath et al. (2018) assert that simulations are at the forefront of causing increased rates of co-morbid psychiatric disorders akin to people diagnosed with internet addiction, such as depressive disorder. Increased playtime in simulations ultimately deprives players of interacting in outdoor activities, primarily social interactions. According to a report published by the US Centre for Disease and Control and Prevention (CDC), 18% of simulation players between 12 and 19 years of age were diagnosed as morbidly obese. The practice of excessively staring into their devices during simulation playtime resulted in more

players being forced to either sit or digress from any form of physical activity and was a leading factor in gaming addiction. Consequently, these factors paved the way for increased depression.

Heavy simulation play led to antisocial behaviors, especially among the young age demographic, leading them to learn new skills, particularly lack of emotional control from these simulations. Besides inducing the inability of players to regulate their emotions, excessive gaming paved the way to a condition known as dysregulation, also known as the inability to control ones' attention, moods, level of arousal to mirror and respond to changes in one environment accurately (Holmgren, 2016). Loss of regulative abilities meant that players were more prone to overreaction and thus more prone to suffering severe forms of depression.

Amso and Scerif (2015) revealed that gaming simulations activated pleasure circuits to a specific degree, leading to a certain degree of impulsive behavior that derails the younger demographic from partaking in social activities. Researchers are convinced that simulations create pleasures that are related to goal fulfillment. A brain scan of players involved in sims using Positron Emission Tomography (PET) revealed that certain games increased a player's dopamine level. Such chemicals are what are responsible for gaming addiction in all people. Significantly, all simulations can trigger changes in players' cognitions, causing them to develop a less than ideal level of empathy. This leads to the creation of opportunities for developing aggressive and disruptive behaviors when interacting with genuine friends. However, because of developing aggressive and disruptive behaviors, such players will tend to witness drastic changes in their behavior either consciously or unconsciously, eventually pushing their friends, colleagues, schoolmates, and even peer away, further pushing them into depression.

Linden (2011) asserts that when people play simulation games for extended periods while bearing an escapist type of mind frame, where they are consciously trying to ignore their issues, avoid confronting stressful problems or face unpleasant emotions, such players become more likely to suffer from depression. The effects of playing simulation games are explained better concerning their ability to ignite specific parts of the player's brain. Parts of the brain that are most affected by simulation games are parts that are engaged in performing motor functions and processing visual information. Studies also identified that increased simulation gaming affects a player's medial forebrain connected to pleasure circuits. These include the amygdala and nucleus accumbens, including the orbitofrontal cortex (Linden, 2011). Although both boys and girls demonstrate a similar degree of activation within these regions in the brain, boys were revealed as having significantly higher levels of satisfaction when playing sims compared to girls. This data demonstrated that there was a higher chance of boys slipping into depression compared to girls.

4.1.5 Increase in Gaming Disorder

According to Tawagi (2018), a new impact of increased play of simulations is the occurrence and Gaming disorder. In 2018, the WHO declared that gaming was an extremely addictive sport and activity, leading to the term *gaming disorder*. According to the International Classification of Diseases (ICD), players increasingly prioritize gaming and its continuation in the face of other priorities. Games such as *Hatoful Boyfriend* are just a few of the games that have managed to capture and sustain players' interest across the world. However, according to health officials, increasing gaming hours is now being seen as a cause of mental health issues.

According to Lopez (2018), though gaming had earlier only been seen to be addictive in the areas of violent video games, this phenomenon was increasingly being noticed in other areas such as card games, paving the way for gaming disorder. A case

reported by Lopez was an American computer engineer named Scott, who was suffering from a game disorder at 45 years of age, leading to poor performance in his workplace to the point it was eating into his wages and ability to support his family (wife and son). The scenario pointed here highlights that excessive playtime, even for seemingly harmless games, can cause gaming on even older adults.

Gaming disorder, when untreated, can have severe impacts on the life and family of the player. In the case of Scott, the gaming disorder led to a collapse in his marriage, the evaporation of his social life, and finally, loss of sleep. Players who attempt to seek help late for gaming disorder were more prone to relapsing than players who sought assistance early on in their hobby. Though incessant gaming is increasingly being seen as a form of disorder in more nations such as the United States of America, South Korea, and China, very little is being done to combat the issue. This could be because of the implications that arise from experts, gamers, and technology websites. For many gamers, the problem of gaming disorder is a personal affair that does not warrant national or federal involvement in their personal lives.

As per the WHO, gaming disorder is a particularly poignant occurrence concerning specific games. Certain characteristics are possessed by games that make the players of these games more susceptible to gaming disorder. These factors include; the simulation being extremely immersive for the player, the presence of gambling-like properties, and finally, the ease of access to these games. Unfortunately, most of these properties all correlate with dating sims.

It is a globally known fact that gaming has become mainstream and almost fashionable among specific generations; however, this comes with its fair share of risks. According to Statista (2020), in 2018, there were a total of 2.3 billion competitive and non-competitive, with the number expected to rise to 2.7 billion by 2021. The incremental rise in

the number of gamers is nothing less than phenomenal when contemplating that in 2014 1.8 billion gamers were indicating the industry has been seeing a consistent increase in players year on year (Lopez, 2018).

However, it is essential to point out that as following Ferguson et al. (2011) research, only 1-3% of gamers are at risk of contracting gaming disorder. Though the percentage is relatively small, the number of people playing dating sims is significantly high, ranging in the millions, translating to several hundred thousand worths of players potentially contracting the condition.

4.2 What prevailing factors are enabling and supporting the creation of dating sims?

Certain factors created an avenue and environment for creating and market for dating sims like all significant trends. A trend in technology that has been in circulation across much of Asia and now the rest of the world, all dating sims follow a pattern and creation method similar to their earlier precursors. Similarly, these sims all exploit factors and conditions in the late 20th century to find their place in the new generation. These factors and conditions include;

4.2.1 Unemployment and Overwork for the Employed

The leading factors that have purposed to allow for the spread of dating sims in Asia are unemployment and overwork for the fortunately employed. The preoccupation with professional and corporate life among many Asians, primarily in Japan, created a market for dating sims. The obsession with dating sims spreads across all genders. Dating sims have been favored because they permit players to pursue romantic relationships at their convenience.

The economic decline that has impacted Japan since their lost decade that began in the 1990s has made financial freedom a challenge that has left many men and women weary

and unable to find or support a heterosexual relationship pushing them into dating sims. In the 1990s, Japanese banks faced severe turmoil that saw 181 banks being closed down (Yoshino and Hesary, 2015). The collapse of these banks was triggered by a stock market bubble that burst alongside the nation's real estate market. These effects led to a period of an economic recession that most people, including economists, still attest has yet to pass, leading to the coining of the term '*Japan's Lost Decade.*' Japan's economic growth during the 1990s became sluggish and one of the slowest within the developed nations (Yoshino and Hesary, 2015).

Additionally, the social predicament of Japan has aided in prolonging the nation's economic decline. Though Japan has the highest life expectancy globally, the retirement age remains at 65 years (Yoshino and Hesary, 2015). This has inhibited the ability of the younger demographics to enter the labor market. For people who can find employment, the higher level of competition, high cost of living, and lack of employment security have culminated in most working prolonged hours to afford a decent life form. For adults unable to find a descent job and wage, most have opted to stay home with their parents, hoping to find a partner that either has a high salary (in the case for women) or find a woman who views their wage (in the case for men) as being sufficient. England, (2017) currently, 4.5 million Japanese middle-aged adults still live with their parents. Of the 4.5 million, the nation estimated that many of these people were either under-employed or unemployed besides being unmarried and aged between 35 and 54. Notably, the Japanese culture of not permitting adults living with their parents to engage in sexual activity echo the earlier sentiments made in the literature review by Suarez (2016) and has allowed dating sims to appear as an escape solution to address the predicament. According to Suarez (2016), 44.2% of Japanese women were found to be virgins, while 42% of men were also recorded as being virgins. Following a study conducted by the Japanese National Institute of Population, this

data was arrived at, and Social Security Research surveyed 8754 singles and 6598 married partners.

The situation of overwork in Japan is so intense it led to the creation of the concept of '*Karochi*,' which translates to death by overwork (Saiidi, 2018). The practice of overworking is historically rooted in Japan's working culture. Unfortunately, this practice has been passed on to the new generation, denying them the chance and time at social interactions outside of the workplace. Unfortunately, this phenomenon is not isolated only in Japan but is also visible in South Korea and now China, all key markets for dating sims. Though China has been experiencing positive and opportunistic economic growth, most of the younger generations have lamented the inability of the nation to afford giving its citizens decent wages as those noticed in the West. The inability and lack of political will to raise employee wages in China have meant that most people can only afford to support one person, eliminating people's chances of sustaining a relationship.

Consequently, this has given way to the rise of dating sims in China. Additionally, the higher population of the male population compared to women has intensified the economic incentives required by men to be considered a viable male suitor. Unfortunately, this has left many men out of the relationship segment, which has intensified the appeal of dating sims to the disenfranchised male generation.

In other South Korea, though wages are relatively more descent compared to China, the high rate of youth unemployment has meant that most people are not considered suitable partners, particularly men, because of lack of employment and financial stability. Sentiments made by Jeong (2021) revealed that hampered job growth was forcing Koreans to delay marriages, telling that at the heart of any relationship were economic matters and particularly financial stability.

According to Gowen and Denyer (2018), there were 34 million more Chinese men than women in 2018 alone. Based on the law of supply and demand, when demand exceeds supply, prices tend to rise, reflecting in China. Women and their families now only consider men who have their own real estate home or apartment with a decent job as potential candidates for courtship. The implications of having too many men attaining adulthood have created an epidemic of distorted labor markets, but most particularly an epidemic of loneliness. According to Li Shuzhuo, a demographer from China's Xi'an Jiaotong University, China's future will be marred by millions of men. Although willing to marry, they will not find a suitable partner (Gowen and Denyer, 2018). All these have played into a situation that has allowed dating sims to find an upmarket condition for the game to thrive among both gender demographics.

4.2.2 Pro-social view of technology

The spread of dating sims in Asia is aided by the spread of the Japanese culture known as *Otaku Culture*. The Otaku culture is based on obsession and manga, anime, and technology. Otaku has been the primary basis behind the success of dating sims as they are seen as an extension of Otaku culture.

Technology is by and embraced mainly in Asia. Though many people like technology and everything related, the few who dislike technology do not actively show discontent in public or private. As Asian nations have continued to emerge from years of colonialism and subjugation and into the realm of economic powerhouse's technology has been the bedrock of this rise. Because of these, all-technological developments are carried about with a level of optimism.

Increasingly Asian nations have pitched the concept that all issues, labor, relationship, health, and wellness, can be resolved with advances in technology. Hence, the fascination and appeal with dating sims could be drawn for the Japanese culture of being

fascinated with all aspects of technology for which dating sims fall in as a form of technology through AI, immersive technology, visual novels, and synchronized storylines.

4.2.3 Fascination with video games

The three nations of Japan, South Korea, and China presented herein are the ones that have the most significant following and downloads for dating sims. Though the statistics provided here are descriptive in that they do not segment the degree of addiction as per each gaming genre, it is clear to speculate that the action is widespread. This supports the deduction that the market for dating sims is attributed to overall gaming culture.

Pang (2017) the fascination with video games in Asia cannot be understated. While on a stroll across any subway either in South Korea, Japan, China, or any major Asian nation and one will be confronted with countless people tapping on their phones. In some cases, these are harmless actions related to either online shopping, chatting, or streaming, but in most cases, it's associated primarily with gaming. Asia's gaming industry is extensive and very profitable, particularly mobile-centered games and gaming. In 2015 alone, the Chinese video gaming industry, including online gaming and all forms of sims, including dating sims, was worth \$ 8.2 billion (56 billion Chinese Yuan), a massive stake for one nation alone (Pang, 2017). This was a significant leap in market size from \$ 910 million (6.2 billion Chinese Yuan) in 2011 (Pang, 2017).

Nagumo (2019) reveals that dating sims alongside other games have become so significant in South Korea that implementing policies that would curb gaming frenzy in the nation would cost the economy \$ 9.3 billion (11 trillion South Korean won) in lost revenue. According to Kim (2019), gaming is practically a national pastime in South Korea, with some people playing games for 72 hours straight. 90% of South Korean adolescents play video games, an industry classified as worth \$ 13 billion in South Korea alone.

According to the World Health Organization (2019), in Japan, 1.82 million male adults aged 20 and above suffering from gaming addiction as of 2018. This was three times the number of people suffering from gaming addiction in 2013. Similarly, 1.3 million female adults are suffering from gaming addiction. This is more than double the number of female adults that were diagnosed with gaming addiction in 2013.

4.2.4 Changing attitudes over traditional courtship, marriage, and family

In many Asian nations, economic liberations have led to a change in traditional beliefs among citizens of the region, with more young people delaying their period for marriage and some even absconding from the practice altogether, giving heed to dating sims passionate alternatives. In South Korea, a famous market for dating sims, 40% of adults aged between 20 and 30 years have left the dating industry unanimously (Qian, 2019). The 21st century of South Korean millennials is referred to as the *Sampo generation*, meaning they have discarded all three traditional things, courtship, marriage, and finally, children. Though China is *Confucian culture*, this culture is more common in South Korea than in China. Confucian culture prioritizes the need to continue one's bloodline through marriage and children (Qian, 2019). However, this ideology began to change during the mid-20th century when Western culture and cultural beliefs started to seep into Asia through cultural interaction, business, and trade; new generations began to prioritize career development and financial liberation at the expense of marriage and children. Qian (2019), in the 1970s, only 1.4% of women aged between 30 and 34 years old had never been married. By 2010, this percentage had risen to 30% (Qian, 2019).

Asian women in the 21st century no longer view marriage as a feasible option because of its associated demand; thus, dating sims allowed them to enjoy both sides of the world; financial and sexual liberation while enjoying non-committal relationships (Seo, 2019). A leading reason most women provided for absconding from marriage in favor of

dating sims was the unequal division of household work and the gendered family duties. Traditionally, once a woman in Asia became married, she was compelled to focus on family duties taking on a more extensive section of roles and responsibilities such as bearing and rearing children and ensuring children's academic success. Absent of marriage, women were free to pursue their careers and realize more advantages that were no plausible within the confines of marriage.

Though women gained more advantages outside of marriage, men remained consciously unsupportive in contributions towards child care of household work within marriage. Because of this, most women chose to steer clear in favor of remaining single as returns from gender-specialized relationships, and eventually, marriage remained constant even for highly educated women. However, for women who still desired to experience love and the emotional and psychological benefits derived from a heterosexual relationship, dating sims emerged to play this role and fill any void left by being single.

Ji-u (2021), following the erosion of other family values, especially of union till death, most Asian people no longer saw the appeal of marriage as it could be expected to end at any time. As Asian nations follow this path, the rise and predicament that years of commitment through marriage could end in divorce make this venture more undesirable. In many Asian countries, the concept of divorce is no longer an uncommon phenomenon as the rates continue to increase. In South Korea, there were 97,331 divorces between January and November of 2019 (Ji-u, 2021). Though this figure is small compared to nations such as the United Kingdom, which saw a 122% rise in the divorce rate in 2019 alone, this trend is gaining more traction in Korea (Ji-u, 2021). In other Asian nations such as China, the incremental rise and commonality of divorce have been extensive. The government implemented a law demanding families to wait for 30 days before their divorce request is

processed (WION News, 2021). In 2019, China saw 1.3 million divorces, a trend that is only expected to continue growing (Prasso, 2020).

4.2.5 Smartphones as an enabler of growth of Dating Sims Increased availability of smartphones

The growth of dating sims has primarily been aided by the influx of cheap smartphones, primarily in Asia, with the largest concentration of smartphones. The success of dating sims has come on the back of the ease of access, availability, and smartphone affordability. Previously a reserve for the wealthy, the spread of globalization has allowed for an increase in knowledge transfer from the previous precursors of technology in the West and into the Asia hemisphere. Though historically most phones were manufactured in the West in Apple, Nokia, BlackBerry, and Siemens, these trends began to shift in the early 21st century with the entry of Asian-made phones from brands such as LG and Samsung. Presently, all major Western smartphone brands have declined and even disappeared or are disappearing except for Apple. The majority of all smartphone brands are now Asian owned and Asian manufactured, which, through the availability of cheap labor, has enabled nearly all people, regardless of social demographic, to afford to purchase and possess a smartphone. This fact has been central to the rise of mobile game applications and the creation, popularity, and success of dating sims.

Valentine (2019) reveals that South East Asia is the world's largest market for mobile games, with a continued growth trend of 17% annually since 2019. According to Huang (2019) China is South East Asia, and the world's leading market for mobile gaming applications accounting for 30.8% of application revenues globally. Of the 30.8% of application revenues in China, 75% are derived from mobile games. According to a list of gaming genres, simulation games rank number 5 by national revenues while ranking number 8 by total downloads.

#	BY REVENUES	BY DOWNLOADS
1	Role Playing	Action
2	Action	Role Playing
3	Strategy	Strategy
4	Adventure	Arcade
5	Simulation	Puzzle
6	Card	Family
7	Puzzle	Adventure
8	Racing	Simulation
9	Family	Card
10	Casino	Board

Figure 1: Top gaming genres by download and revenue in China (Huang, 2019).

Smartphone penetration in China was at 55% in 2018 alone, demonstrating that there were 782.8 million people with smartphones. In 2021 the number is projected to rise to 918.5 million smartphone users in the country.

Japan's annual spending on smartphone games for 2018 was 3.5-times higher than that of Americans. For 2018, 15.4% of the global revenues for smartphone applications originated from Japan, worth \$ 11.1 billion. On the same note, revenues from mobile games for 2018 were 5-times more significant than those derived from non-gaming applications.

#	BY REVENUES	BY DOWNLOADS
1	Role Playing	Action
2	Action	Puzzle
3	Adventure	Adventure
4	Card	Role Playing
5	Puzzle	Simulation
6	Strategy	Arcade
7	Simulation	Family
8	Sports	Strategy
9	Music	Board
10	Arcade	Sports

Figure 2: Top gaming genres by download and revenue in Japan (Huang, 2019).

Simulation games in Japan ranked number 7 in terms of revenues while ranking number 5 by total downloads. There were 70.3 million smartphone users in Japan by 2018, and the number is expected to reach 76.7 million by 2021. The country has a 55% smartphone penetration.

In South Korea, mobile games accounted for 84.9% of the total revenue from smartphone applications in 2018. Game revenues for smartphones were worth \$ 3.2 billion in 2018 and are expected to grow to \$ 4.1 billion by 2021. South Korea ranks the world's 4th largest market for smartphone gaming applications in 2018 behind China (ranked 1st), the United States (ranked 2nd-though are not avid players of dating sims compared to Japan, China, and South Korea), Japan (ranked 3rd) and South Korea (ranked 4th). There were 27.0 million mobile phone gamers in 2018, and the country enjoys the highest smartphone penetration rate across Asia at 68%.

#	BY REVENUES	BY DOWNLOADS
1	Role Playing	Action
2	Action	Arcade
3	Strategy	Role Playing
4	Simulation	Simulation
5	Adventure	Puzzle
6	Arcade	Adventure
7	Puzzle	Strategy
8	Sports	Board
9	Board	Family
10	Card	Sports

Figure 3: Top gaming genres by download and revenue in South Korea (Huang, 2019).

Figure 3 demonstrating top gaming genres by download and revenue in South Korea is unique in that simulation games are more famous in South Korea, ranking 4th by revenues and the same for downloads. In total simulation games brought in a revenue of \$ 56 million and were downloaded 23.4 million times in 2019 (Lu, 2020). This reveals that dating sims are more common in South Korea per capita.

All the statistical data and figures demonstrated herein from three nations, South Korea, Japan, and China, in this sub-topic, illustrate the degree of mobile game infiltration and following in three of the largest smartphone gaming markets in Asia. This data has revealed the extent to which smartphones have created an enabling environment for the growth, dissemination, and success of dating sims. Notably, only these three nations were chosen because only they had data for the penetration of dating sims besides being the key markets for this gaming niche.

4.2.6 The benefits of Dating Sims as a Factor

Although the demerits associated with dating sims are comprehensive and significant, this gaming genre does carry some key merits that though limited, stick with the player even outside of the bounds of the game. According to Papamarko (2017), dating sims offer players an invaluable but safe environment to explore diverse forms of relationships while also being guaranteed their safety. Many people that lack the necessary social skills to thrive in the real world find an almost complete and rewarding substitute in dating sims from where they are provided with the chance to harness their social skills without the fear of reprisals.

Dating sims allow players to build up their confidence and self-image in preparation for the time or place when they will be confronted by either an admirer or a person seeking a long-term, emotionally fulfilling relationship. According to the founder and CEO of Bloom Digital Media, Miriam Verburg, mobile dating sims allows players that are not ready for a relationship to be trained in scenarios that help them master their vulnerability associated with being admired (Papamarko, 2017). The success of this venture among both male and female clients has seen various game developers such as Bloom Digital Media receive countless requests on how best to customize their games to fit the demands and preferences of its players. One key demand that also translated into a benefit for the player was the desire to allow players to choose any gender they wanted while playing instead of conforming to their gender while playing the game.

Because dating sims offered an experience almost similar to that in the real world, players that were not sure of their sexuality were allowed to experiment with a different sexual identity. This allowed queer youth and adults to play out either their fantasy of being male, female, or gender-neutral in the dating sim story without necessarily having to

disclose their true identity or undergo any major life-altering medical procedures. An example of a dating sim that has and continues to offer this kind of benefit is *LongStory*.

Dating sims allow the player to train in social cues and flirting without the fear of mistreatment or rejection. In the post-modern Me-Too movement world, blatant and forward forms of flirtations, including other sexual cues, either harmless or not, have gained negative publicity, especially for women (Corbin, 2018). Men, particularly those residing in developed nations, have now been forced to reign in their conduct, especially around the opposite sex, for fear that their actions might be construed as a form of sexual harassment. However, absent of this, when playing dating sims, players are provided with the incentive to be themselves and experiment with social cues such as flirting that would have otherwise landed them in potential problems in the outside world.

Franciosi et al. (2016) attests that dating sims has been found to aid players in the process of learning and eventually to master a new foreign language. The demand for digital education has paved the way for new digital experimental modules for learning to precede. However, one has found great success in educating learners who are wary of learning a foreign language. As Franciosi et al. reveal, dating sims that employ 3D graphic technology and virtual environment were uncovered as having the most significant potential for providing players with an immersive background necessary for them to learn a second language. A factor that potentially aided players' ability to use dating sims relayed in 3D graphic technology to learn a foreign language was its ability to enhance a player's long-term memory retention abilities.

4.3 What target demographics and gender do date sims target?

According to Google Play's (2019) survey finding, game creators and developers now target all genders and age demographics following the global drive for inclusivity. These

findings mirror those made earlier by Liang (2019) that dating sims were now producing male and female gamers. However, there seems to be a greater preoccupation with focusing more on women than men, with 18% of all games made in 2019 featuring female protagonists up from a previous 5% in earlier years. Previously, the industry had targeted male players as they formed the bulk of gaming enthusiasts.

Velocci (2015) previously, game developers were wary of the market of games centered around women and girls. However, with the entry of dating sims in Japan, the first initial market, its wide acceptance by the female public inspired a complete subculture centered around dating sims for women. One dating sim that has garnered success and has demonstrated that women are a viable marketing niche for dating sims has been *Amnesia: Memories*- a Japanese visual novel dating sim that has found following as far as the United States of America, reaching 22 million downloads globally by 2015 alone (Velocci, 2015). Other dating sims that have followed suit are *Love and War* and *Hatoful Boyfriend*, all dedicated to exploiting the female gaming market.

Intrinsically, the past 21st century had yet to see any male-centered dating sims achieve the level of success currently being recorded in female dating sims. Outside of the male dating sim known as *The Game*, which tries to tutor male players on how best to court women in the shortest time possible and achieve their maximum potential for seduction, there have been no new games that have been released to address this market niche (Hudson, 2019). This predicament could be associated with the fact that many men are spoilt for choosing which games to play, such as *Fortnite*, *Call of Duty*, *Minecraft*, *Apex Legends*, and *League of Legends*, to mention a few (Sourav, 2021). All the games mentioned here feature a certain degree of violence which is not appealing to most female gamers (Hartmann, and Klimmt, 2006). Contrastingly, very few games have been dedicated to the female audience, with only 5% of all games having female protagonists (Yokoi, 2021).

According to an article published by Yokoi (2021), female gamers have been rising, with researchers attempting to understand what is fueling this phenomenon. In 2020 when women made up only 41% of gamers, both competitive and non-competitive, in the United States of America, this number was larger in Asia, where women accounted for 40-45% of total gamers in the region (Yokoi, 2021). According to a study conducted in Taiwan, women players played for two reasons; social reasons and achievement, whereas their male counterparts played for enjoyment.

As the global rage for inclusiveness continues to intensify, this initiative has found its way into the gaming sector as well. In the United States, there is a non-profit organization known as the *Women in Games Ambassador Program*. The organization features 446 ambassadors (individual) hailing from all parts of the world besides 12 corporate members, is advocating for more female-friendly games while also tutoring women and girls on how to better understand and partake in the gaming industry (Yokoi, 2021). All these factors and trends highlight a drastic and future shift where simulations will become more gender diverse meaning, they can identify all genders. This is already being seen in dating sims and can be guaranteed to continue for long.

4.4 What future trends are developing in the dating sim market niche?

Thus far, the dating sim segment has and continues to receive a wide following and because of this is expected to continue growing much into the 21st century. This realization is primarily attributed to the fact that society in and outside of Asia has become conscious of the game. All last taboos and social rejections of the practice have begun to decline as the industry continues to receive an acknowledgment. In 2009 alone, the sector witnessed an 83% growth rate according to the Japanese research institute “The Yano Research Institute,” a research organization that was founded in 1958 and remains the nation’s first non-public marketing research firm, dating sims were worth \$ 106 million in 2009 alone (Loo, 2010). In

2010, the industry grew by \$ 20 million alone, reaching a total valuation of \$ 126 million (Loo, 2010).

According to Koss (2021), the future of simulations looks extremely bright, with the adoption of AI in simulations is no longer science fiction but a fact. This echoes the sentiments of Menon (2018) made earlier in the literature review that simulation games will adopt more usage of AI to power their games. In the past, simulations were based on the concept of Non-Player Characters (NPC) who followed a specific script, such as in the case of a dating sim; two way interaction was the *modus operandi*. If the virtual character asks a question, the player answers; if the player responds, the virtual character asks another question and the process repeats itself. However, in new simulation designs, developers have taken a new approach to developing more complex, sophisticated, and intelligent NPCs. For example, they are now programmed to possess and reflect a behavior tree that enables them to generate more than one answer through a complex decision-making algorithm. This aspect is already being seen in certain simulations such as '*Halo*', where enemy NPC can act together and independently instead of following one another in a single file without any specific *modus operandi*.

Vivekanandarajah (2018) data analytics is increasingly being adopted in simulation game production because of its ability to provide a wealth of information to both developers and publishers. Creativity and good graphics are no longer sufficient. In 2017, the game industry generated \$ 108.9 billion worth of revenue which meant that players were producing significant volumes of data sufficient for developers to utilize improving their gaming design, marketing initiatives, and business models. To keep gamers constantly engaged, creators need a constant stream of information from their clients on making their products better. According to Müller et al. (2016), big data analytics is being embraced because of its success in key segments of business that are relative to the gaming industry,

such as marketing and business models. Data analytics will assist game developers in making accurate decisions on long-term and short-term business models by understanding what factors make a game popular and addictive. One extremely powerful analytics software is SAS which segments audiences to any desirable variable. With all these in mind, their marketing initiative will also be improved, thus making strong sales.

According to Koss (2021), VR has enamored the gaming industry and is set to be the next gaming frontier because of its ability to provide a completely immersive simulation experience to all players. These sentiments mirror those made earlier in the literature review by Delaney (2021). Various technology companies have leaped, attempting to provide this technology to the masses at a cheaper rate. Some of these technology companies include; Google, Sony, Facebook, Microsoft, and new companies such as Magic Leap. These companies are investing considerable sums to make VR headsets cheaper and more lightweight. However, it will take some considerable time before this technology becomes a common phenomenon in the gaming industry.

Chapter 5: Conclusion

The following chapter provides a summary of the significant deduction points that were addressed in the research. This section will also summarize the important findings of the study. The culmination of the paper's findings is touched upon in this chapter while providing recommendations for areas of future research.

Currently, the market for dating sims seems to be concentrated in Asia. But due to globalization, the technology and game dynamics are spreading into the rest of the world, first starting in the West. However, as economic demographics and wealth continue to move East, it can be easily predicted that most profits will still be derived from the Asian market for several decades and even centuries to come. One of these factors is that Asia has the largest population demographic hence more clients for gaming industries to exploit. Additionally, Asia is undergoing renewed economic growth, whereas the West is in recession and decline.

Dating sims have emerged at a time of considerable technological, social, and cultural shift globally, particularly in Asia. An industry that appeared in the late 1980s, dating sims have moved forward to attract several million players and downloads, as in the case of *Hatoful Boyfriend*, the Japanese dating sim targeted at women. Poignantly, several factors have heralded the path and success of dating sims. These factors include the rise and availability of cheap smartphones across the world, in particular Asia. Another factor identified was the change in cultural ideology, emphasizing embracing western culture concerning women's liberation, pursuing a career, and prolonging marriage. Though these measures were heralded earlier by Asian governments as a step towards inclusion and increasing economic growth, they brought with them the consequence of delayed marriage by women who did not wish to be relegated to a housewife when so many other opportunities existed outside of marriage.

Despite this, dating sims have come with their share of effects on society. These effects include; declining birth rate as a result of gaming addiction that triggers social withdrawal. On the same note, the rise of dating sims has also paved the way for gaming disorder and the perpetual issue of distorted reality for specific but excessive simulation players. All these implications demonstrate a bleak future for nations whose citizens have fallen privy to dating sims and other forms of simulation and video games.

5.1 Suggestions for future research

Despite the study investigating the implication of dating sims upon individuals and society in general, there remain considerable research gaps in this area of research and the technological landscape of relationship building. The limited amount of research into dating sims and their impact is underscored by the limitations in the amount of research that exists, opening new avenues for researchers to explore further.

One avenue that has emerged where significant research potential exists is in monetary gains associated with dating sims. Are the economic revenues derived from creating dating sims practical and self-sustaining? There is minimal knowledge concerning how dating sims realize and maintain their profits. Because dating sims operate under the premise of providing players with their romanticized relationship, there are few incentives for players to pay for this service when a ready substitute exists. The substitutes (real flesh and blood heterosexual partners) exist in abundance and are more fulfilling and offer the opportunity to manifest into something more significant such as marriage, a family, and children. Because of this, one has to wonder how such games realize profits from developing such data-driven and immersive games.

What is the future of players that have been immersed in dating sims for countless hours, months, and even years? Though players who embroil themselves in these games seek emotional and psychological fulfillment, limited research exists on what the players do

immediately after achieving their end goal. Like other games, players can only repeat a scenario for a specified amount of time before becoming monotonous and self-repeating.

Like other games, the architecture of dating sims is not infinite. Thus, the game can only run for so long before it runs out of ways to stimulate players emotionally, romantically, or psychologically.

Consequently, what happens to players who fulfill their relationship fantasy on either one or multiple dating sims? Do such players continue on the same path looking for new dating sims to dispense with the same fantasy hoping for a different journey and outcome, or do they naturally revert to traditional relationships and flesh and blood heterosexual partners. In light of the spread of dating sims from Asia to the rest of the world, this issue needs to be investigated tandemly.

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