SOCCER: MOST FAVORITE CASUAL GAME

Djoko Setyabudi¹, Reni Shinta Dewi², Ari Pradhanawati³
¹Departemen Ilmu Komunikasi, FISIP, Universitas Diponegoro
²,³Departemen Administrasi Bisnis, FISIP, Universitas Diponegoro

Abstract

This study aims to discover the favorite casual games in adults, both gamers and not. Respondents ranged in age from 17 to 56. This study fills the research gap about the taste of casual gaming in the city of Semarang, because so far researchers have often found many studies on the types of games that fall into the category of ‘heavy games’ and tend to be played by game addicts who dedicate time and money to playing games or e-sports athletes. This research gives us information about the types of casual games that are most liked by adult game players in the city of Semarang. Meanwhile, the casual game category is ignored because it is only played by players who are not serious and just to pass the time. In addition, it also provides information on the extent to which casual players are willing to play the type of games that they think are worth playing, including the criteria for games to be installed to try to play. Inside their smartphones are installed Android-based game applications that are played. Conducted in Semarang, the sampling technique used was convenience sampling with 170 people. The data will be analyzed with quantitative descriptive methods to describe the condition of the sample. The findings showed that respondents liked games that were lightweight, uncomplicated, and required high concentration. Games that can be played in the past and tend to be dexterous.

INTRODUCTION

Originally intended only for amusement, video games have progressively transformed into a new medium as microprocessor capabilities have increased. The likelihood of a game being run by a microprocessor increases with the capabilities of microprocessors manufactured and made available in the market. In the last decade, the development of microprocessors in the realm of smartphones has occurred so rapidly as well as RAM has increased its capacity, in addition to being cheaper, providing an increased ability to process increasingly large and complex system commands very quickly. Due to this

Corresponding Author:
Department of Communication Science Program, Diponegoro University, Indonesia
Gedung A FISIP UNDIP 1.11, Jalan dr. Antonius Suroyo, Universitas Diponegoro, Kampus Tembalang, Kota Semarang, Jawa Tengah, Indonesia. 50275
Email: djokosetyabudi@lecturer.undip.ac.id
circumstance, games—originally known as video games—become commonplace smartphone applications that are loaded onto devices by default when they are first purchased by customers. However, in the future, users will be able to remove unwanted games from their smartphone and replace them with ones that interest them, based on the smartphone's capabilities.

In its development, games have gradually evolved into a marketing tool, persuasion, interactive media, because it already has the ability to play in a multiplayer format where in various scenes there are spaces with advertisements. The players can exchange information. So that now games have emerged as a new computer-based media whose shape is no longer similar to television sets, but has shrunk and integrated into mobile phones. However, the game format in the form of a console also continues to advance with capabilities similar to desktop computers, besides that there are also portable mini consoles that resemble tablets where the capabilities are equivalent to laptops, but are specifically used to play games.

The use of games for various purposes, in addition to games continues to grow rapidly, because of the game characters that provide fun to the player, experts and academics are interested in using them for several purposes, including marketing. When it comes to marketing, video games can hold players' interest for extended periods of time without making them feel bored or causing them to become more invested in the experience. In general, players progress through understanding the game's rules, trying out tactics, creating strategies, and eventually mastering it. A game should have challenges that are implemented in the early stages of the player's learning process, without being overly simple so that players can advance straight to the mastery stage. But the game shouldn't be so challenging that the user can't learn how to play it. This can cause despair that can result in players leaving the game and switching to other games. If games are used for the sake of learning about healthy living, then the learning mission will fail.

Research on Game Based Learning reveals several important things, Chang (2023) found that games are beneficial if used in the teaching and learning process, because students become more enthusiastic about playing games, and the subject matter is packaged into game content that is included in the game mechanism and played. Mastery of the material will be measured clearly by the high and low scores obtained by students. For students who have not reached the minimum score will be able to continue the process.
Game-based learning is able to increase the involvement, motivation and engagement of students in the learning process. This is interesting to apply in the context of marketing. Because in the early stages the consumer will be asked to learn about the product (which the consumer may have just heard of), this is similar to the initial stage of the player playing the game. As the player continues to play and becomes more cognitively engaged and begins to activate his or her thinking ability to solve problems then he will inadvertently remember the game mechanics associated with the promoted product. At this point, the more involved the player is, the more motivated he will be and also the engagement will be automatically created.

Thus, games at first glance have the potential to cause consumer engagement as well as brand involvement. This can happen if the message packaging can be neat in the game mechanism that will hit the consumer while he or she is playing the game. Therefore, inevitably, efforts must be made so that the game is considered attractive by consumers. So that the process can run smoothly and produce the expected effect.

So to generate a feeling of liking in players, game creators must know for sure the game tastes of consumers. So that consumers will linger playing the game for a long time and the length of the playing duration will increase the duration of exposure to information, which means that the learning process will take longer. This means that the possibility of growing consumer engagement will be higher. At this stage, it is important to know what kind of games are liked by consumers.

The concept of Dynamic Difficulty Adjustment (DDA) considers difficulty adjustments in playing games that should be dynamic and not constantly easy or very difficult, but there are parts that are made quite difficult but can be mastered by the player. This condition makes players more excited when they realize that they are able to master difficult conditions in the game.

Climent, Longhi, Arbelaez & Mancini (2024) revealed that based on the concept of Dynamic Difficulty Adjustment (DDA), a good level of difficulty is dynamic following the player's ability so that it is as if the game is played according to the ability, which means that every difficulty can be solved even by working hard. Not that it is too easy and not that it is unreachable and will cause despair. Furthermore, it was also found that the player's ability increased along with the repetition of the game in the event of a 'game over'. The increased ability is ideally followed by an increase in the difficulty of the game being played, generally appearing in the form of an increase in the number of enemies attacking simultaneously or gradually. This increasingly difficult
condition will still be considered exciting as long as players are able to overcome it. Occasional failures add to the player's vigilance. But if the failure is continuous and continuous then the player will start to think that he will not be able to survive.

The psychological aspect of the player needs to be considered for the continuity of the game which can be interpreted in the context of communication, the interaction process must be maintained by keeping the difficulty level from soaring too high.

Chesham, Wyss, Müri, Mosimann, Nef (2017) conducted an almost similar study in Switzerland that tried to find out the acceptance and type of casual games that are preferred by adults there. The most preferred type of casual game is puzzles, then simulation and action or agility. The study was intended to find out to what extent adults in Switzerland accept games on their smartphone devices and love them. However, in the implementation of this research, namely in 2017 the capabilities of smartphone processor devices are not high enough as well as the RAM capacity circulating in the market is not as large as it is today, so games that do not experience lag are puzzle models, on the contrary, agility type games are not so interesting considering that game developers are always limited to RAM capacity and speed and available processor processing capacity. It is not strange if this type of dexterity is a bit difficult to look stunning.

This study is part of a larger project aimed at creating casual games that can be used to promote communication between consumers and brands, thus fostering consumer-brand engagement. The researchers are exploring the potential of simple games for consumer-brand communication to maintain strong relationships between consumers and brands, especially during their free time.

The games' flexibility and ability to reach consumers during their leisure time make them an effective tool for generating positive consumer responses. Games are also seen as a way to encourage consumers to learn about concepts, attitudes, and behaviors that benefit themselves and the brand while adhering to social norms. Ultimately, this can lead to increased transactional behavior with the brand or product being promoted in the real world.

In this preliminary research, the objective is to identify the most popular casual games among adult gamers. This information will be crucial in designing an experimental game that will be used for the primary research. The following are the steps to get to the main research:

![Figure 1. Research Steps](image-url)
Based on the picture above, this is the first research conducted in this series. Stage A will be followed by subsequent research (B), which will examine the theories used by previous gamification researchers in the last ten years. It is hoped that researchers will gain a solid footing to build the logic of their research so that they do not just repeat existing patterns.

Caia, Cebollada, Cortinas (2022) revealed that the movement of game players from conventional ways (console and PC games) to smartphones occurred very massively, in various countries. This move is due to several reasons, namely: 1. Practicality, 2. Increasingly sophisticated smartphone capabilities, 3. Ease of getting smartphones (prices are getting cheaper), 4. The increase in the types of games on the Android platform, 5. Connectivity with the internet.

Practicality is a very common reason because playing games conventionally requires quite high sacrifices from various factors. The sacrifice of time, is the main reason players move to android smartphones. This is because players do not have time allotted only to play games, typical of casual players.

Increasingly sophisticated smartphone capabilities make it possible for smartphones to work on increasingly complex and large in-game computing commands relatively quickly, reducing the latency that in previous decades gave as if the smartphone was stuck, even though it was actually still operating at very low speeds. The slow condition has been handled quite well.

Ease of getting smartphones (prices are getting cheaper), the cheaper the price of processing units and the various ICs needed in smartphone production make the price of smartphone units continue to decrease. In addition to increasing production capacity, technological development encourages the production of ICs and processors with more advanced and advanced capabilities so that it continues to push previous technologies in terms of price and continues to experience price declines.

The increase in the types of games on the Android platform. At first, the types of games provided by the Android platform were only a few and the types were only the simplest with low complexity in terms of visuals and mechanics. This is what makes conventional game players not interested in switching platforms. At that time, the Android platform was still in close competition with Apple's IOS, so application manufacturers continued to observe the market and only explored the market with low-cost lightweight products. In addition to the market, software manufacturers are
waiting for Android-enabled hardware to improve its capabilities. Likewise with game manufacturers, they are waiting for the processor to increase its ability to be able to play various types of games that are quite heavy, but suitable to play on the android platform for players who want games on smartphones above the level of casual games.

The various advantages that Android smartphones have, so more and more conventional game players are moving to the Android platform, in addition to casual players who only choose to play light games to pass the time because of boredom.

Satria, Priyanto and Azzahra, (2023) conducted research on the use of a game called Djamu which was made to introduce authentic Indonesian herbal drinks, so that finally Djamu players can consume these herbal drinks in their daily lives. The study self-designed the Djamu game, which was adjusted to the behavior of the study participants, and with the one-shot before after field experiment, it was found that the participants experienced a significant increase in knowledge about jamu. However, to go to daily behavior, it is not certain considering that this research is only one shot. All that can be found is the interest in behaving in the future, to consume herbal medicine has been seen. So logically, the duration of participants playing the Djamu game needs to be extended to exceed 7 days to be able to fairly see whether the participants' daily behavior has changed or not.

In research conducted by Satria, Priyanto and Azzahra, (2023) the Djamu game was made with the basic Unity engine, which was modified according to the needs of the game made. By using various types of processing machines available on various game creator websites, it will make the process of making games easier according to the needs of researchers. The design chosen by this researcher tends to encourage the cognitive performance of the participants which is finally able to increase the participants' knowledge about herbal medicine.

Research by Ghosh & Sreejesh & Dwivedi (2021) found that the speed of an advergame (an ad-containing game) has the ability to shape brand attitudes and buying interests. But it still depends on how fast and how familiar the player is with the ads that are placed. The less familiar a brand is, the lower the game speed is needed, and vice versa.

Research on advergame capabilities like this has been the object of research for a long time, because marketers have often included advertising content in games, both conventional and mobile games. Therefore, in the world of marketing, there is already a
term advergame. In other words, the use of the concept of gamification of the designed ads can be enjoyed directly by game players.

In the realm of Advergame, academics and marketing practitioners are more interested in the effect than seeing what kind of game is of interest to this type of game player. It is in this gap that this study seeks to complete information about this advergame. Knowing the tastes and preferences of game players on a certain type of game that will be chosen to be the basic design of advergame is very important, because if the marketer mistakenly determines the type of game that will be used as the basic design, then the game player, will not be willing to play it. If an advergame is only played by a few players then the mission will not be successful.

The aim of this study is to find the type of casual game that is preferred by the majority of adults in the city of Semarang, to be a reference for the process of making casual game designs for the purpose of research instruments.

Making the Game Model will be assisted by a technical team who will technically translate the researchers' needs and turn it into an Android game. After that, the researcher will select 2 MSMEs to become experimental participants. Thus, the primary research can be carried out for two months. That is the overview of the entire series of research.

**LITERATURE REVIEW**

**Methodology**

This research involved 170 male and female respondents who were found and lived in Semarang, with the criteria being 18 years and over and having a smartphone with games installed. The instrument used was a short questionnaire with a convenient sampling technique. After the data is collected, it will be analyzed using quantitative descriptive techniques.

**Conceptual Study**

Gamification uses game principles, such as logic and rules, in non-game contexts. Nowadays, gamification is used in various fields to achieve their goals. Education is the most dominant field that uses gamification principles. Games can provide explanations to players without teaching them in a traditional sense. They tend to show various actions and the risks involved without dangering players. Other fields also use gamification principles, but to varying degrees, such as the concept, logic, or insertion of implicit or explicit messages in a real game, for example, advergames and others (Eisingerich, 2019).

This research will examine opportunities for gamification capabilities in
marketing, especially in efforts to build consumer engagement with brands. Bitria’n et al. (2021) suggest that gamification encourages customers to revisit an app frequently. Hofacker et al. (2016) show that a gamified mobile platform can affect a crucial set of retailing outcomes such as consumer entertainment, accelerated repurchase, consumer retention, and in-store engagement.

Nowadays, the most practical games are Android-based games that can be installed on Android smartphones. The widespread use of Android-based smartphones in society provides ample opportunities for the public to own games. However, it is up to the people whether they want to install the Game (Coursaris, 2012).

Smartphone owners easily own Android-based games, and they can choose various types of games they like. The games on the Google Play Store can be grouped into several groups, namely a. Relax, b. Role Playing Games (RPG), c. Simulation d. Music e. MOBA (Multiplayer Online Battle).

**Casual Game** is a light game, and players do not need a particular amount of time; the difficulty level is not high, and it is simple. Usually, developers only focus on one or two main things to win and are not complex. However, they can increase the Game's difficulty by increasing the speed of play, which can be a hassle for players.

The application of gamification at various levels will have real effects. However, they may vary because the content of gamification varies depending on the context and purpose for which the gamification was created. In marketing, the various interests of brand owners can be accommodated by gamification, which has been revealed in the research, namely its influence on brand loyalty and word-of-mouth promotion (P. Torres, 2022).

The application of gamification at the highest level is the use of games with a specific purpose by using game rules and logic; game software is also used as a medium for conveying the rules and logic of the Game. So that consumers have the experience of playing games, but the rules and logic are adapted due to the interests of the game creator. So that consumers not only accept the creator's logic but also understand the logic and rules by enjoying light entertainment. This relaxed and unforced condition makes consumers easily accept things that are new to them. This opportunity is essential for the world of marketing (Aydınlıyurt, 2021).

Gamification has a positive effect, even though it is not immediate, but can form attitudes and behavioral intentions that align with the system maker's
recommendations (persuasion); gradually, players will follow the new 'norm'. Zhang et al. [77] confirm that gamification has a significant positive effect on behavior intentions. Gamification juga mampu memberi manfaat yang cukup besar dalam lingkup e-commerce dan e-banking L.F. Rodrigues et al. (2016).

Gamification can form Brand Love and Behavioral Intention, which is profitable for the brand if consumers get a positive impression of the games they play. A positive attitude towards the Game will result in a positive attitude towards the sponsoring brand. In the next stage, a positive attitude can form Behavioral Intention, which contains various kinds of possible behavior. Marketers must be able to embed particular messages to lead to specific behavior or be supported by other marketing communication tools to lead to that specific behavior. In a marketing context, generally, the specific behavior desired is purchasing. However, it can also, to a lesser degree, take the form of a positive attitude, interest, and positive response to the brand or even a willingness to give recommendations to others (S. Nicholson, 2015).

Agar game mampu menimbulkan efek psikologis yang menguntungkan maka dibutuhkan terpaan pesan dengan durasi yang cukup Panjang dan frekuensi yang tinggi. Dua hal itu mampu dicapai jika game developer memperhatikan konsep DDA yang diterapkan secara otomatis sejak pembuatan software sehingga secara otomatis game akan menyesuaikan parameters, skenarios dan atau perilaku musuh dengan mendasarkan diri dari data yan didapatkan dari aksi pemain yang menunjukkan skill-nya. Sehingga game mampu mengimbangi kenaikan kemampuan pemain dengan menaikkan kesulitannya, sehingga pemain akan selalu tertantang dalam permainan itu. Titik bosan menjadi melebar semakin jauh. Dan proses belajar bisa terus berjalan.

**FINDINGS**

In this study, the age group was dominated by 18-20; although the numbers were insignificant, there was only a 4% difference between the minimum and maximum values. The researchers tried to ensure that the number of extreme respondents differed, even though the proportions were not the same for the three age classes. The first class is 18-20 years old, the second is 21-26, and the third is 27 and over.

This classification is based on psychological age divisions, namely early adulthood, adulthood, and late adulthood, while also taking into account the typical
phases of life in Indonesia, namely, the early adult group is usually still in early college. It is still influenced by the way high school students think. Meanwhile, the adult category usually includes students at the final level, employees at the junior level, or fresh graduates. Meanwhile, the last category is adults and late adults, who in the life cycle in Indonesia are senior employees to older people who have retired.

![ Ages of Respondents

Figure 1. Ages of respondents

Figure 1 shows that although there are no more class respondents than the others, the difference is not significant. This is considered essential to provide an objective picture and not be dominated by the reality of just one class. In terms of age, the oldest respondent involved was 53. It is difficult to find Android smartphone users over that age who use game applications on their gadgets. They tend to use many network communication applications such as WhatsApp.

So, for adult players like them, when do they play their favorite games? It should be remembered that the adult gamers referred to in this research are casual game players or those who play games when they have free time, which tends to be boring. So, their level of gameplay is light in contrast to real gamers who dedicate particular time to playing games with complete and complex equipment.

Respondents admitted that the majority (52%) played games while waiting for something, while those who played games during their free time (27%) were in second place. Free time here usually means between activities that usually include work, but when time is available, to relax, generally those who are still of productive age. Then, some categories play games before bed (7%) and with friends (7%). Those who play When with friends are generally in the early adult category where they like Multiplayer Battle (MOBA) type games which can be played in teams on the same side at once so that apart from being able to interact through the Game, they also often coordinate via communication. Face to face. Furthermore, if played in a group it is more fun. On the other hand, this game tends to be more complex, especially for the initial setup stage, so casual gamers who are more senior are less interested.

Generally, hardcore (heavy) game players on smartphones are those who have experience playing complex games on PCs.
that are served by Game Centers in Indonesia, or use PCs and notebooks on their own. There are high-performance PCs and notebooks on the market that are intended for hardcore gamers.

In the current condition, the type of games running on the Android platform is experiencing rapid development, due to the development of hardware, especially processors and RAM of (Random Access Memory) smartphone which continue to increase their processing capacity, so that currently it provides an opportunity for game developers to develop the complexity of the game system until it looks like a PC game. RPG and MOBA games can be played on the Android platform.

Various new games have emerged with a complexity similar to PC games, triggering the migration of PC game players to smartphones. There are also many smartphones that have a positioning as a gaming smartphone that offers high technical specifications, but at a relatively low price. It is precisely unknown brands that are more aggressive in the gaming smartphone market.

In addition, many hardcore game players are found on smartphones who are not former PC and notebook users, they are a younger generation and have been familiar with smartphones since childhood. The number of this generation is quite large in Indonesia, generally they get acquainted with smartphones when they are toddlers and start playing with their parents' smartphones, without knowing what exactly the device is, but eventually they start to get used to it and are able to understand. But there are also those who only have access to smartphones after elementary school because they interact with friends, and the school environment considers children who do not participate in online games that are going viral as outdated.

Figure 2. Gaming Time
children and are not included in their group. This makes children consciously try to learn various trending games, to be able to follow the association of their friends at school.

Even though some play games right before bed (7%) and even allocate particular time, the number is small (4%) (figure 2). In general, respondents who are not serious gamers do not have an emotional connection with certain games. However, if there is time that they think they will be lost without being useful or bored, they tend to start playing games, even if they are not serious games.

Respondents admitted to playing various games so there was almost no discernible pattern. However, if you look closely, car games (0.02%) and soccer (0.03%) stand out among other types of games. Meanwhile, the number for other games is far below that.

Casual game players are people who are avoiding suffering because of boredom. They try to use casual games to temporarily forget the boredom until the waiting period arrives. Therefore, it is understandable that they do not have a great commitment to playing the casual games they play. They are not willing to sacrifice any time or money, although in some cases, some are willing to spend a small amount of money to get the ease of playing it.

Some people already have a little preparation when they are going to face a waiting condition or in a queue, because they have been stuck in a similar situation before. However, the preparation is generally still very light, namely bringing a headset so as not to disturb the neighbors next door when the game goes on to be very exciting.

Some other people also prepare a powerbank or charger, especially for those who realize that their smartphone battery is starting to not be optimally performed.

For people who in their daily lives and work have the possibility of facing a long waiting condition, these preparations have become a habit that has become very natural.
Figure 3 shows that the majority, almost 90%, of the types of games they like are light casual games. Even though the soccer game is the most popular, this Android version of the soccer game is simplified so that it is easy to operate on a smartphone, and the complexity is far below the original version on a PC.

There is an interesting finding when the FreeFire (FF) MOBA game is included in the top 5, because this game is quite complicated even though it is full of action elements but cannot be categorized as a casual game. This game requires a high commitment to play it and is quite noisy if played without a headset. And again this game will be interesting if played in multiplayer with the availability of a computer network. This type of game that reached popularity first was Mobile Legend. This game is also the same and can be played in a multiplayer format, even the game logic is identical. This kind of game is also played by children and adults in groups, either in the same place or separately, because they are connected through the internet network. In fact, it is not uncommon for brands to play across countries.

If we look closely at who plays the race and soccer game categories by gender, men (73%) dominate, and the rest are women (27%). Meanwhile, Chesham, Wyss, Müri, Mosimann, Nef (2017) found that action games only ranked 3rd.

However, it is very clear that both genders like the type of agility game that once played has nothing to do with the next game that is often in the type of agility game that is adventure or regional exploration. The disadvantage of the disconnected type is that the player will continue to start from the beginning if they start the game again.

Chesham, Wyss, Müri, Mosimann, Nef (2017) who conducted research similar to this one but was conducted in Switzerland, with the following results: The most preferred casual games are: puzzle, simulation and action.
This finding is different from the research conducted in Semarang, because the casual game that is preferred is a new type of agility/action followed by other types. This difference is very obvious because of the difference in the games available on Google Play that are already different, also because the sophistication of the game has increased much due to the difference in the power of the processor and RAM units at that time and today. On the other hand, there are differences in social and cultural conditions in Switzerland and Indonesia. Objectively, we will meet different player tastes according to different times and places as well. Therefore, the researcher took the initiative to carry out this research to convince the tastes of players in Semarang.

Another potential of a game that appears in the midst of players who are playing is learning, and experts know that the process of persuasion for any benefit will definitely initially go through the learning process on the audience side. Before the audience decides to accept or reject the content of the persuasive message, he will carry out the cognitive process first, then the audience is able to decide. At this point, there is the potential for games to be used for various needs, academic, commercial and social marketing, socialization and so on.

CONCLUSION

Basically, this research presents quite clear research findings that the type of game preferred includes several criteria, such as 1. light; 2. not complex; 3. no thinking; and 4. concise, fun, and entertaining.

The majority of the games mentioned have simple rules and game logic, and they are technically easy to play because they use Android smartphone media. The ability to provide enjoyment, including positioning players as parties who are able to carry out various actions that they would not be able to do in the real world, will increase the pride of players if they are able to master the game.

BIBLIOGRAPHY

Alexandra Theben a,* , Roos Fink b , Frans Folkvord c,d (2022) Playing with fruit: An experimental study to test the effectiveness of an online memory advergame to promote children’s fruit consumption, Appetite Volume 173, 1 June 2022, 105936


Cai, Xiaowei, Cebollada Javier, Cortinas Monica (2022). From traditional gaming to mobile gaming: Video game players’ switching behaviour. 

Chesham’ MSc; Patric Wyss’ MSc; René Martin Müri, MD; Urs Peter Mosimann, MD, PhD; Tobias Nef, PhD (2017) What Older People Like to Play: Genre Preferences and Acceptance of Casual Games, JMIR SERIOUS GAMES 


Heejun Lee, Chang-Hoan Cho( ) An application of brand personality to advergames: The effect of company attributes on advergame personality, Computers in Human Behavior Volume 69, April 2017, Pages 235-245 


Patrícia Marques Santos, Joana Matos Dias, Cristela Maia Bairrada, (2024) Gamification in marketing: Insights on
current and future research directions based on a bibliometric and theories, contexts, characteristics and methodologies analysis, Heliyon may 302024


Thomas Galih *, Reyna Rosalia, Zephania Isadoraa , Yasmin Quita (2023). 7th International Conference on Computer Science and Computational Intelligence 2022 Casual game design to introduce jamu.


Yoon Hi Sung , Wei-Na Lee (2020), Doing good while playing: The impact of prosocial advergames on consumer
response, Computers in Human Behavior Volume 106, May 2020, 106244

Zhixing Guo, Ruck Thawonmas, Xiangshi Ren (2024) Rethinking dynamic difficulty adjustment for video game design, Entertainment Computing Volume 50, May 2024, 100663