

WHY DO GAMERS PURCHASE VIRTUAL ITEMS IN MOBA GAMES?

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ABSTRACT

This study explores and analyzes multiplayer online battle arena (MOBA) gamers' motivation, experience and purchasing behavior in purchasing virtual items. A purposive sampling method was employed and there was a total of 469 respondents participated. The data was analyzed using structural equation modeling-partial least square (SEM-PLS) and partial least square-multigroup analysis (PLS-MGA). The results show that enjoyment, skill, challenge, telepresence, and interactivity have a positive impact on the flow. Further, the flow has a positive impact on both the purchase intention and continuous intention. In addition, both continuous intention and social value have a positive impact on the purchase intention. Lastly, the shopping enjoyment strengthens the positive impact of flow on both the continuous intention and purchase intention; and the positive impact of continuous intention on the purchase intention is strengthened by both shopping enjoyment and age. These findings highlight that there are many factors influencing the purchase intention of MOBA games' virtual items, and provide a valuable contribution to practitioners and academics in relation to the factors influencing the MOBA gamers' purchase of virtual items.

JEL: M31.

Keywords: *flow, purchase intention, MOBA games.*

1. INTRODUCTION

Game flow that gamers encountered can influence their purchase intention of virtual items (Hamari & Keronen, 2017). The flow delivers an optimal gaming experience and enjoyment, motivating them to spend real money on the virtual items (Ghazali, Al Halbasi, Fattah, Uzir, Mutum, & Tan, 2022). A variety of factors might influence the flow conditions perceived by the gamers, such as telepresence and enjoyment – which are two key factors that can shape the whole flow experience (Chang, 2013), skills, and challenges. The flow happens only when the gamers' skills and the game's difficulty level complement and support one another. If the gamers' skill exceeds the game's difficulty level, they may become bored with it, and vice versa (Shu-Hui, Wann-Yih, & Dennison, 2018). Apart from that, the flow can also be developed through interactivity, which can provide enjoyment to the gamers and ultimately result in a flow experience (Gao, Bai, & Park, 2014).

Furthermore, it is believed that when individuals experience enjoyment while in a state of flow, they develop a tendency towards continuous intention (Zhao & Khan, 2022). Meanwhile, the continuous intention (Hamari, Hanner, & Koivisto, 2019) and a sense of showing off can influence the purchase intention (Saadeghvaziri, Dehdashti, & Askarabad, 2013). On the other hand, social value can also influence the purchase intention as it meets the gamers' social motivation to let others know when they own something (Wu, Huang, Chen, Davison, & Hua, 2018; Yoo, 2015). Furthermore, the gamers can be motivated to collect a set of virtual items because of the shopping enjoyment in the games they enjoy the most (Ghazali *et al.*, 2022) and also their age (Bittner & Shipper, 2014).

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As a research topic, researchers have expressed in exploring the purchase intention of game virtual items. This phenomenon is intriguing, as the gamers are willing to buy intangibles in the form of simply a collection of data with no value in the real world (transactions with no real money) (Ghazali, Mutum, & Woon, 2019). In-app purchases typically consist of purchasing online identities, avatar accessories, and virtual items for various reasons, including social interaction, community norms, expressing identity, performance expectations, and the need to escape reality (Halbusi, Estevez, Eleen, Ramayah, & Uzir, 2020). The referred in-game virtual items are intangibles provided in the games to improve the gamers' persona or their statistics (Syahrizal, Purwandari, Mishbah, & Dzulfikar, 2020). The games can make the gamers want to keep playing and willing to pay for a better experience (Shu-Hui *et al.*, 2018).

Ghazali *et al.* (2022) investigated the motivation, experience, and behavior of the gamers purchasing the game virtual items. Meanwhile, this present study focuses solely on the gamers' enjoyment, skill, challenge, telepresence, flow, continuous intention, shopping enjoyment, purchase intention, interactivity, social value and age. The games investigated are mobile games as it represents 51% of the digital games market share globally (Purnami & Agus, 2020). This study specifically analyzes multiplayer online battle arena (MOBA) games in the context of Indonesia, as they were a game genre popular among amateur and professional gamers than other game genres (Siste, Hanafi, Sen, Christian, Andrian, Siswidiani, Limawan, Murtani, & Suwartono, 2020).

In short, this present study aims to explore and analyze the MOBA gamers' motivation, experience, and purchasing behavior in purchasing the virtual items. The results of this study are expected to contribute to advance the scientific level of marketing management by providing a better theoretical understanding of the variables investigated.

2. THEORETICAL FRAMEWORK AND EMPIRICAL STUDIES

2.1. Theoretical Framework

The enjoyment refers to how much pleasure the gamers can experience. According to the hedonic perspective, prior researches have indicated it as a major factor (Sun, Zhao, Jia, & Zheng, 2015). The more the gamers in a virtual environment, the higher the level of enjoyment (Barhorst, McLean, Shah, & Mack, 2021). In the context of video games, the gamers choosing games with lower levels of difficulty report higher levels of enjoyment compared to those who choose more difficult games (Schaffer & Fang, 2019). This variable is measured by five scales, namely pleasure, desire, relaxation, comfort, and giving a feeling of pleasure (Ghazali *et al.*, 2022).

Next, the skill can be defined as specific abilities to perform an action well, especially those acquired through learning and practice (Chow, Meerhoff, Choo, Button, & Tan, 2023). In the context of games, the skill refers to the ability to identify effective solutions (Ghazali *et al.*, 2022). If the gamers' skill exceeds the games' difficulty level, they may feel bored with it, and vice versa (Shu-Hui *et al.*, 2018). This variable is measured by four scales, namely very skilled, have strong knowledge, superior to others, and have a better understanding (Ghazali *et al.*, 2022).

Further, the challenge refers to the games' difficulty level (Liu & Shiue, 2014). The goal-setting theory explains that the gamers are highly motivated by complex challenges (Ghazali *et*

al., 2022), and at the same time still achievable (Ghazali *et al.*, 2022). However, if the difficulty level is too high and is considered impossible and unrealistic to achieve, the gamers may lose the motivation to overcome the challenge (Michailidis, Balaguer-Ballester, & He, 2018). This variable is measured by five scales, namely challenging, providing a good test of skill, challenging to master all elements, challenging to try everything, and challenging to demonstrate the best skill (Ghazali *et al.*, 2022).

Furthermore, the telepresence is an experience in which the gamers feel totally immersed in a natural-looking environment while actually being somewhere else (Ghazali *et al.*, 2022). It involves a perception of a mediated environment and consists of two elements: arrival - a feeling of being in a different environment; and departure - a physical feeling of leaving the current location (Dugan, Sadykov, Roozbahani, Alizadeh, & Handroos, 2024). It is a well-known concept in the context of “presence” (Lombard & Jones, 2015) and it is an important component of experiencing the flow (Anandya, Indarini, & Darsono, 2023). This variable is measured by five scales, namely feeling and thinking like a hero; feeling like the body is in the room but the mind is in another dimension; making the gamers forget where they are after playing; it is like returning to the real world; and forgetting about the surroundings while playing (Ghazali *et al.*, 2022).

Additionally, the interactivity is an action taken by the gamers to communicate and share information with providers, with an emphasis on two-way communication (Liu, Zhang, & Chen, 2022). The degree of interactivity in a system can influence how useful and comfortable the gamers in playing the game (Almaiah, Jalil, & Man, 2016). It is considered a fundamental attribute in the game design, where the game attracts the gamers’ attention through interactive features aiming to advance the story or enhance the exploration of interactions and social relationships, as seen in the multiplayer games (Denisova, Cairns, Guckelsberger, & Zendle, 2020). This variable is measured by four scales, namely discussing with others, communicating with others, sending instant messages, and having strong opportunities to interact with others (Wei & Li, 2021).

Moreover, the flow is a condition where individuals are totally engaged in an activity, has a full focus and energy, and has a high level of enjoyment and satisfaction (Liu & Shiue, 2014). In the context of games, it can have a significant impact on the gamers’ decisions to make in-game purchases to achieve an optimal gaming experience they really enjoy (Ghazali *et al.*, 2022). However, achieving the game flow is often associated with the challenges (Su, Chiang, Lee, & Chang, 2016). This variable is measured by three scales, namely feeling confined, feeling like time goes swiftly, and not being disturbed (Wei & Li, 2021).

In addition, the continuous intention can be defined as an ongoing interest to be involved or participate in a particular system or activity (Yang, Cai, Yang, & Wang, 2023). It frequently occurs when the gamers enjoy the game (Zhou, 2020). The main goal of game providers is to keep the gamers committed to the game, so that they may generate revenue from them at the moment and in the future through advertising or the in-game purchases (Hamari, 2015; Hsiao & Chen, 2016). The gamers’ decisions to purchase the in-app virtual items often depend on their intention to continue playing the game (Ghazali *et al.*, 2019; Zhou, 2020). Purchasing the in-game virtual items indicates that the gamers are committed to playing the game in the long term (Passalacqua, Morin, Sénécal, Nacke, & Léger, 2020). This variable is measured by five scales, namely the intention to continue playing in the future, continue playing regularly, playing as

much as possible in the future, hoping to continue playing, and willing to play in the future (Ghazali *et al.*, 2022).

Moreover, the social value can be explained as an increase in the gamers' status or a display of prestige in the social context of the game, occurring when the gamers have an item or achievement that makes them look better in the gaming community, thereby influencing the decision to purchase the item (Yoo, 2015). It also has a significant influence on the gamers' retention and revenue in freemium gaming services (Hamari *et al.*, 2019). This social value can also play a role in influencing the gamers' purchase intention since they meet their social motivations (Wu *et al.*, 2018). This variable is measured by three scales, namely being recognized by others, making a better impression, and making the gamers feel appreciated (Gan & Wang, 2017; Yoo, 2015).

Besides, the shopping enjoyment refers to the level of satisfaction that individuals obtain through the shopping or purchasing process (Ghazali *et al.*, 2022), which provides pleasure and satisfaction to the buyers (Ata & Sezer, 2021). When they enjoy a shopping experience, they are more likely to provide positive reviews and high ratings of the products or services they purchase (Lee, Khong, Hong, & Guptan, 2014). The shopping enjoyment can also influence impulsive buying behavior, where the consumers are more likely to make unplanned purchases when they enjoy the shopping experience (Uzir, Al Halbusi, Thurasamy, Hock, Aljaberi, Hasan, & Hamid, 2021; Wu, Chiu, & Chen, 2020). In the gaming context, the gamers are often encouraged to collect virtual items because they enjoy the process of purchasing virtual items from the games they like (Ghazali *et al.*, 2022). This variable is measured by three scales, namely the desire to own and complete a set of virtual items, feeling good when owning and completing a set of virtual items, and feeling excited when owning and completing a set of virtual items (Ghazali *et al.*, 2022).

Further, the age refers to how long a person has lived (Berkup, 2014). It can be divided into generations based on the range of birth years (Tarhan & Unal, 2022). It has always been a major concern in marketing and advertising literature (Zhao & Lee, 2018). It influences the consumer behavior through various implicit factors, such as information processing, decision-making, attitudes, and purchase intention (Bittner & Shipper, 2014; Pérez & Bosque, 2013).

Meanwhile, the purchase intention refers to the decisions taken by the consumers after considering reasons for purchasing a particular product (Ghazali *et al.*, 2019). It is often closely related to the consumer behavior, perceptions, and attitudes and is often utilized as an effective tool to predict the purchasing process (Mirabi, Akbariyeh, & Tahmasebifard, 2015). It can be used as a tool to evaluate the application of new distribution channels, assist managers in determining whether the concept is feasible to implement, and decide which geographic markets and consumer segments to target through these distribution channels (Peña-García, Gil-Saura, Rodríguez-Orejuela, & Siqueira-Junior, 2020). This variable is measured by five scales, namely the intention to purchase in the future, estimated future purchases, the consideration of purchasing in the future, the possibility of purchasing in the future, and the consideration of spending real money to purchase (Ghazali *et al.*, 2022).

2.2. Empirical Studies

Previous researches have not examined the role of age in strengthening the relationship between the continuous intention and purchase intention. Therefore, this research involves the

age variable in the research model. The following Figure 1 presents the research model which picturizes the relationships between the enjoyment, skill, challenge, telepresence, interactivity, flow, continuous intention, shopping enjoyment, social value, age and, purchase intention.

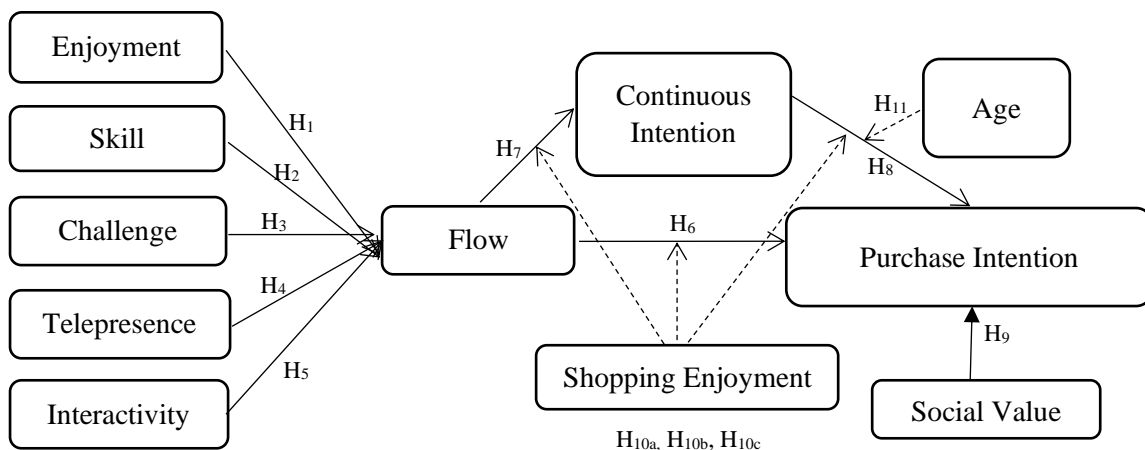


Figure 1. Research Model

In an activity with a high level of enjoyment, an overall feeling known as the flow emerges (Chen, 2007; Liu & Shiue, 2014). The degree to which the gaming activities can provide pleasure to themselves is an indicator of enjoyment (Zhao & Khan, 2022). This provides an experience in which the gamers focus solely on their activities (Barr & Copeland-Stewart, 2022). Sun *et al.* (2015), Kim & Hall (2019), Zhao & Khan (2022), and Ghazali *et al.* (2022) have proven that the enjoyment has a positive impact on the flow. Therefore, the first hypothesis that can be proposed is as follows:

H1: Enjoyment has a positive impact on the flow.

In order to complete the game challenges, the gamers must have the necessary skill (Qian & Clark, 2016). As the gamers progress through the game, they will improve their skill and knowledge. When the gamers’ skills are sufficient to complete the challenges, a very enjoyable flow experience will emerge (Hamari, Shernoff, Rowe, Coller, Asbell-Clarke, & Edwards, 2016). This enables the game designers to create a balance between the gamers’ skill level and game challenge level in order to establish and maintain the flow (Qian & Clark, 2016). Researches conducted by Guo, Xiao, Van Toorn, Lai, & Seo (2016), Su *et al.* (2016), and Ghazali *et al.* (2022) found that the skill has a positive impact on the flow. Thus, the second hypothesis that can be proposed is as follows:

H2: Skill has a positive impact on the flow.

Further, several games have a continuous cycle of challenges that are continuously updated (Qian & Clark, 2016). These continuously growing challenges create an enjoyable flow experience, so that the gamers are naturally motivated to complete the challenges to stay in the flow (Hamari *et al.*, 2016). According to findings of Liu & Shiue (2014), Guo *et al.* (2016), Su *et al.* (2016), Zhao & Khan (2022), and Ghazali *et al.* (2022) who stated that the challenges have a positive impact on the flow. As a result, the third hypothesis that can be proposed is as follows:

H3: Challenge has a positive impact on the flow.

Moreover, the telepresence is a state in which the gamers feel physically present in a virtual reality environment (Rae, Venolia, Tang, & Molnar, 2015; Wei & Li, 2021). This experience creates a sense of enjoyment that will make them feeling involved in the flow (Pelet, Ettis, & Cowart, 2017). In the game world, the gamers will have a distorted sense of time and a lot of positive emotions. In this mental state, the telepresence will transport the gamers to a virtual place where real space and time connections gradually fade. This kind of experience is desirable because it creates a flow experience (Faiola, Newlon, Pfaff, & Smyslova, 2013). Faiola *et al.* (2013), Guo *et al.* (2016), Pelet *et al.* (2017) and Wei & Li (2021) agreed that the telepresence has a positive impact on the flow. Hence, the fourth hypothesis that can be proposed is as follows:

H4: Telepresence has a positive impact on the flow.

Then, the interactivity fosters a social presence that reflects a sense of community in a virtual environment (Sun, Gao, & Geng, 2021). Fast and precise two-way interactions enable the consumers experience the flow in online activities (Liu *et al.*, 2022). When the individuals connect, they tend to participate more actively, resulting in a better emotional experience and flow state (Gao *et al.*, 2014). Studies conducted by Alzahrani, Mahmud, Ramayah, Alfarraj, & Alalwan (2017) and Sun *et al.* (2021) found that the interactivity has a significant positive impact on the flow. Wei & Li (2021) stated that the interactivity has a positive and significant impact on the flow. This is also in accordance with the results of a study conducted by Liu *et al.* (2022) which discovered that the interactivity has a positive impact on the flow. Thereby, the fifth hypothesis that can be proposed is as follows:

H5: Interactivity has a positive impact on the flow.

In addition, the flow can be established in the online shopping environment, leading to increased browsing and, eventually, purchases (Wu *et al.*, 2020). In the gaming environment, the flow can influence the buyers to make the in-game purchases in order to maximize their gaming experience and enjoyment (Ghazali *et al.*, 2022). Thus, in previous studies by Hamari & Keronen (2017), Chen, Hsu, & Lu (2018), Martins, Costa, Oliveira, Gonçalves, & Branco (2019), and Ghazali *et al.* (2022), it was found that the flow has a positive effect on the purchase intention, where the higher the flow, the higher the purchase intention. Therefore, the sixth hypothesis that can be proposed is as follows:

H6: Flow has a positive impact on the purchase intention.

Furthermore, the flow experience can influence the customers' satisfaction and future behavior (Chang, 2013). The individuals experiencing the pleasure while in a state of flow are likely to repeat the same behavior on a regular basis (Park, Chen, & Cheng, 2021). Chang (2013), Passalacqua *et al.* (2020), and Zhao & Khan (2022) have proven that there is a positive effect of flow on the continuous intention. Thus, the seventh hypothesis that can be proposed is as follows:

H7: Flow has a positive impact on the continuous intention.

Additionally, in the gaming context, the virtual items are purchased to enhance the gaming experience (Ghazali *et al.*, 2022). The desire to improve the gaming experience indicates that the gamers are committed to playing the game continuously (Moon, Hossain, Sanders, Garrity, & Jo, 2013). The gamers' purchase intention is determined by their decision to use and

long-term commitment to playing the games (Morschheuser, Riar, Hamari, & Maedche, 2017). Jung, Bae, & Yun (2014), Ghazali *et al.* (2019), and Hamari *et al.* (2019) have proven that there is a positive impact of continuous intention on the purchase intention. As a result, the eighth hypothesis that can be proposed is as follows:

H8: Continuous intention has a positive impact on the purchase intention.

Besides, the social interactions can lead the gamers to display their social identity (Yu & Huang, 2022). This creates a tendency to show off when they have something (Yoo, 2015). The existence of social values that meet the gamers' social motivations can affect their purchase intentions (Wu *et al.*, 2018). Yoo (2015), Hsiao & Chen (2016), Wu *et al.* (2018), Hamari *et al.* (2019), and Yu & Huang (2022) have proven that there is a positive influence of social value on the purchase intentions. Hence, the ninth hypothesis that can be proposed is as follows:

H9: Social value has a positive impact on the purchase intention.

On the other hand, the buyers obtain the pleasure and satisfaction from their purchases (Camoiras-Rodriguez & Varela, 2020). The shopping enjoyment can lead to the impulsive buying behavior (Uzir *et al.*, 2021; Wu *et al.*, 2020). The purchase behavior might be seen as increased user commitment to the service platform (Lee *et al.*, 2014). The online shopping environments can produce the flow by encouraging the shopping and repeat purchases (Hammood, Asmara, Arshah, Hammood, Al Halbusi, Al-Sharafi, Shihab, & Khaleefah, 2020). Lee *et al.* (2014), Camoiras-Rodriguez & Varela (2020), and Ghazali *et al.* (2022) have proven that the shopping enjoyment can strengthen the influence of purchase intention. Thereby, the tenth hypotheses that can be proposed are as follow:

H10a: Shopping enjoyment strengthens the impact of flow on the continuous intention.

H10b: Shopping enjoyment strengthens the impact of flow on the purchase intention.

H10c: Shopping enjoyment strengthens the impact of continuous intention on the purchase intention.

Meanwhile, the age frequently has a major impact on the consumer behavior (Bläse, Filser, Kraus, Puumalainen, & Moog, 2023). In the case of adult gamers, they tend to spend more money on the games (Herzallah, Muñoz-Leiva, & Liebana-Cabanillas, 2022). Escobar-Rodriguez, Grávalos-Gastaminza, & Pérez-Calañas (2016), Tiruwa, Yadav, & Suri (2018), Zhao & Lee (2018), and Herzallah *et al.* (2022) have proven that the age can strengthen the influence of purchase intention. Therefore, the eleventh hypothesis that can be proposed is as follows:

H11: Age strengthens the impact of continuous intention on the purchase intention.

3. RESEARCH METHODS

This study was conducted in a quantitative manner. This research focused on the MOBA gamers in Indonesia. Although the population size was big, the exact amount was unknown. A purposive sampling method was employed with several criteria. The participants must at least 17 years old, have purchased the MOBA game virtual items for at least 2 times, have played the MOBA games for at least 3 months, and have a minimum income of IDR 2,500,000. These criteria were selected to ensure that the MOBA gamers were committed to play the MOBA games and purchase the virtual items, and there was a total of 469 respondents participated. The

data was collected through a questionnaire distributed online through Google Forms for a month in February 2023. It had a response rate of 100% and was measured using a 5-point-Likert Scale, with 1 being 'strongly disagree' and 5 being 'strongly agree'. The data was then analyzed using the structural equation modeling (SEM). This study conducted validity and reliability tests. The validity test was measured based on the Kaiser-Meyer-Olkin (KMO) and measure of sampling adequacy (MSA) measurement value which must be higher than 0.5 (Ghazali *et al.*, 2022), and a Cronbach's alpha of higher than 0.6 (Hair, Sarstedt, Hopkins, & Kuppelwiesser, 2014), respectively. The multigroup analysis (MGA) was also conducted to examine the age moderation with 1 representing the Generation Z (17-23 years old) and 2 representing the Generation Y (24-43 years old).

4. DATA ANALYSIS AND DISCUSSIONS

4.1. Data Analysis

Based on the results of this study, most of them were male (51.2%), lived in Java (76.3%), and between 17-23 years old (Gen Z) (50.1%). Furthermore, most of them had a bachelor degree (52.2%), worked as private employees (41.4%), and had an average monthly income of IDR 3,000,000 – IDR 3,999,999 (40%). Further, based on the construct validity and reliability tests were carried out based on the recommendations by Hair *et al.* (2014), where the loading factor, composite reliability (CR), average variance extracted (AVE) value must be higher than 0.70, 0.70, and 0.50, respectively. The results of this study show that all questionnaire items have a loading factor value of higher than 0.70, confirming that they were all valid and reliable. The CR value of enjoyment, skill, challenge, telepresence, interactivity, flow, continuous intention, social value, shopping enjoyment, and purchase intention is 0.900; 0.868; 0.907; 0.945; 0.855; 0.870; 0.933; 0.868; 0.857; and 0.875, respectively. Meanwhile, their AVE value is 0.644; 0.624; 0.661; 0.774; 0.597; 0.692; 0.735; 0.687; 0.667; and 0.584, respectively.

Furthermore, this study conducted a structural test analysis based on R^2 value, explaining how well the independent variables explaining the dependent variables. The results show that the flow (F) is simultaneously influenced by enjoyment (E), skill (S), challenge (C), telepresence (T) and interactivity (I) with an R^2 value of 0.626. This indicates that these variables could explain the flow by 62.6%, while the remaining 37.4% could be explained by other variables not included in this study. In addition, the continuous intention (CI) is influenced by the flow (F) and the moderating role of shopping enjoyment (SE) with an R^2 value of 0.231. This suggests that the flow (F) and shopping enjoyment (SE) moderation accounted for 23.1% of the continuous intention (CI), while the remaining 76.9% could be explained by other variables not included in this study. Besides, the purchase intention (PI) is influenced by the flow (F), continuous intention (CI), social value (SV), and the moderating role of shopping enjoyment (SE) and age (A) with an R^2 value of 0.589. This implies that the flow (F), continuous intention (CI), social value (SV), and shopping enjoyment (SE) and age (A) moderation could explain the purchase intention (PI) by 58.9%, while the remaining 41.1% could be explained by other variables not included in the study.

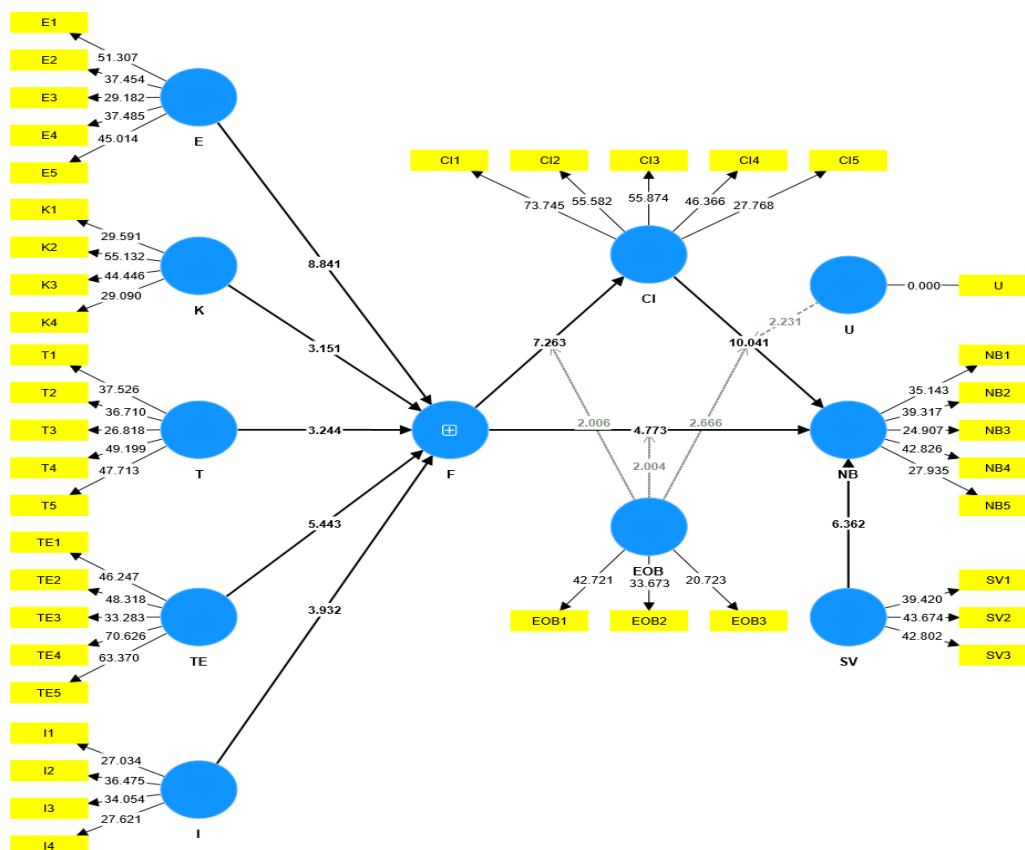


Figure 2. T-Value Path Diagram

Based on the T-value path diagram above, the results of hypothesis testing can be summarized in Table 1 as follows:

Table 1. Results of Hypothesis Testing

Hypothesis	T-Value
H1 Enjoyment has a positive impact on the flow	8.841
H2 Skill has a positive impact on the flow	3.151
H3 Challenge has a positive impact on the flow	3.244
H4 Telepresence has a positive impact on the flow	5.443
H5 Interactivity has a positive impact on the flow	3.932
H6 Flow has a positive impact on the purchase intention	4.773
H7 Flow has a positive impact on the continuous intention	7.263
H8 Continuous intention has a positive impact on the purchase intention	10.041
H9 Social value has a positive impact on the purchase intention	6.362
H10a Shopping enjoyment strengthens the impact of flow on the continuous intention	2.006
H10b Shopping enjoyment strengthens the impact of flow on the purchase intention	2.004
H10c Shopping enjoyment strengthens the impact of continuous intention on the purchase intention	2.666
H11 Age strengthens the impact on continuous intention on the purchase intention	2.231

Source: Processed Data (2023)

Based on Table 1, all hypotheses have a T-value of higher than 1.96. This implies that all hypotheses can be supported empirically. Further, the PLS-MGA analysis was conducted to examine the differences between groups for the proposed hypotheses. The results show that Gen Z has a β value of 0.630, while Gen Y has a β value of 0.695. This suggests that Gen Y was more dominant than Gen Z in moderating the impact of continuous intention on the purchase intention.

4.2. Discussions

This study explores and examines the impact of enjoyment, skill, challenge, telepresence, and interactivity on the flow; the impact of flow on the purchase intention and continuous intention; the impact of continuous intention and social value on the purchase intention; the moderation of shopping enjoyment on the impact of flow on the continuous intention and purchase intention; and the moderation of shopping enjoyment and age on the impact of continuous intention on the purchase intention. All of these hypotheses can be supported empirically. These findings imply that when the MOBA gamers enjoyed playing the MOBA games, it could lead them to a flow experience. They felt happy and relaxed which led to a sense of comfort. This indicated that the higher the level of enjoyment, the more the flow experience felt by the gamers. They got immersed and reached a higher level of flow (Kim & Hall, 2019). This finding is supported by Kim & Hall (2019), Ghazali *et al.* (2022) and Zhao & Khan (2022) explaining that the enjoyment had an influence on the gamers' flow.

Furthermore, the findings also imply that the gamers' game skill affected the flow experienced. The gamers believed that they had a good understanding of MOBA games and superior skill in playing MOBA games compared to other online games they played. This could be interpreted that the higher the gamers' skill, the higher the perceived flow. Skillful gamers found that playing the MOBA games was interesting and fun. When with the game assigned tasks requiring their skill, the flow would increase; and they would get bored if the opposite happened (Guo *et al.*, 2016). This finding is supported by Guo *et al.* (2016), Su *et al.* (2016) and Ghazali *et al.* (2022) who found that the skill affected the gamers' flow.

Moreover, the results of this study suggest that the challenge has a positive impact on the flow. The gamers believed that playing the MOBA games challenged them to demonstrate their best skills. It also served as a good evaluation of their skills. Therefore, the more challenging the challenges, the greater the flow the gamers experienced. However, the challenges must be balanced with the skills they had. Complex challenges would encourage them if they believed they could complete them. In contrast, if the challenges were beyond their skills, they would be anxious (Su *et al.*, 2016). This is in line with studies conducted by Zhao & Khan (2022) and Ghazali *et al.* (2022) which found that the challenges influenced the flow.

Next, this study confirms that the telepresence has a positive impact on the flow. When playing the MOBA games, the gamers lose track of their surroundings. They might believe that their bodies were in the room, but their minds were in the game world. This resulted in the flow experience in which the gamers believed that the time passed quickly and they could not be disturbed while playing. This meant that when the gamers' telepresence increased, so would the flow. The telepresence explained the gamers' experience in a virtual reality environment. It created a virtual experience which allowed them to see a gaming object in the real life when they were fully immersed in the game (Pelet *et al.*, 2017). This finding is supported by several previous researchers confirming that the telepresence positively and significantly affected the flow (Guo *et al.*, 2016; Pelet *et al.*, 2017; Wei & Li, 2021).

Additionally, this study discovers that the interactivity has a positive impact on the flow. In the MOBA games, the gamers could send instant messages and communicate with one another, immersing them in the game environment and leading to the flow experience. Effective social interaction could make the gamers happy, resulting in the flow experience (Sun *et al.*,

2021). This finding strengthens several studies which found similar findings (Alzahrani *et al.*, 2017; Liu *et al.*, 2022; Sun *et al.*, 2021; Wei & Li, 2021).

Moreover, this study finds that the flow positively influences the purchase intention. The gamers believed that time flew fast when playing the MOBA games and that they could not be distracted when playing. The respondents of this study planned and would consider to purchase the MOBA in-game virtual items in the future. It was because these gamers were likely to focus on improving their character in the game and acquiring the virtual items was one of the quickest methods to do so. The gamers' purchase intention of the virtual items increased as their flow experience improved. This is similar with Ghazali *et al.* (2022) who explained that when the gamers experienced the flow, they would be motivated to purchase the game virtual items.

In addition, the flow is found to have a positive impact on the continuous intention. When the gamers were fully immersed in the game, it fueled their desire to play the MOBA games as much as possible. They would also plan to continue to play the MOBA games in the future. As the sense of flow grew, so would the desire to continue. These gamers were proven to repeat the same behavior when they enjoyed the game (Park *et al.*, 2021). This finding is also similar to those of previous studies (Chang, 2013; Park *et al.*, 2021; Passalacqua *et al.*, 2020; Zhao & Khan, 2022).

Further, this study finds that there is a positive impact of continuous intention on the purchase intention. The gamers confirmed that they wanted to keep playing the MOBA games as much as possible and planned to continue playing them in the future. They also planned and considered purchasing the virtual items in the future. This highlighted that they had the commitment to continue playing the MOBA games from time to time, which would induce the desire to develop the character they had in the games, and to develop the character quickly by purchasing the virtual items. Several researchers had also supported this findings (Ghazali *et al.*, 2019; Hamari *et al.*, 2019; Jung *et al.*, 2014; Morschheuser *et al.*, 2017).

Furthermore, this study discovers that the social value has a positive impact on the purchase intention. The gamers believed that owning the MOBA game virtual items allowed them to make a better impression on others and felt more accepted, which led to the purchase intention. It was also possible that the gamers purchased the virtual items in order to differentiate themselves from others. They also wanted to show off their virtual items, especially if the items were exclusive. Several previous studies have also found the same (Hamari *et al.*, 2019; Hsiao & Chen, 2016; Wu *et al.*, 2018; Yoo, 2015; Yu & Huang, 2022).

On the other hand, this study finds that the shopping enjoyment strengthens the impact of flow on the continuous intention. The gamers believed that possessing the MOBA game virtual items increased their level of enjoyment and made them feel good, which made them wanted to continue playing the MOBA games in the future. This purchasing behavior indicated a stronger loyalty to the service platform (Camoiras-Rodriguez & Varela, 2020). This is supported by Ghazali *et al.* (2022), who discovered that the significance of continuous intention was influenced by the gamers' level of shopping enjoyment. The higher the gamers' shopping enjoyment, the greater their continuous intention, and vice versa

Besides, this study also discovers that the shopping enjoyment strengthens the impact of flow on the purchase intention. The flow experience established from the gamers' purchase intention of MOBA game virtual items could be reinforced by the gamers' positive feelings when

they owned the virtual items of MOBA games they enjoyed. As the MOBA gamers got immersed in the games, part of them believed that they lived in the MOBA game world. Owning the virtual items made them game more fun and they felt better. This would result to increased purchase intention. This intriguing finding is supported by a recent study conducted by Ghazali *et al.* (2022), which found that the shopping enjoyment might improve the association between flow and purchase intention.

Similarly, this study also finds that the shopping enjoyment strengthens the impact of continuous intention on the purchase intention. The MOBA gamers who wanted to keep playing the games in the future were committed to doing so and were willing to spend money to make the gaming experience even more enjoyable. This commitment led to a desire to continue improving the characters in the MOBA games, one of which could be done by purchasing the virtual items. The ownership of MOBA game virtual items might bring joy to the gamers, prompting the purchase intention. This finding contrasts Ghazali *et al.* (2022) which found that the shopping enjoyment did not influence the relationship between continuous intention and purchase intention.

Lastly, this study finds that the age also strengthens the impact of continuous intention on the purchase intention. The more mature the gamers, the more likely they were to purchase the virtual items. The mature gamers were more likely to continue playing the MOBA games, while also planned and considered purchasing the virtual items. This was due to their more mature age, where they already worked and had a consistent and sufficient income to purchase the virtual items. Previous studies (Escobar-Rodríguez *et al.*, 2016; Herzallah *et al.*, 2022; Tiruwa *et al.*, 2018; Zhao & Lee, 2018) have also found similar findings.

5. CONCLUSIONS, SUGGESTIONS, AND LIMITATIONS

The results show that the enjoyment, skill, challenge, telepresence, and interactivity have a positive impact on the flow. Further, the flow has a positive impact on both the purchase intention and continuous intention. In addition, both continuous intention and social value have a positive impact on the purchase intention. Lastly, the shopping enjoyment strengthens the positive impact of flow on both the continuous intention and purchase intention; and the positive impact of continuous intention on the purchase intention is strengthened by both shopping enjoyment and age.

The results of this highlight three major suggestions for the game developers. First, the interactivity in MOBA games can enhance the purchase intention of virtual items, implying that the game developers are suggested to raise the sales of virtual items in the MOBA games, allowing them to make more money. Second, the social value can enhance the purchase intention of MOBA game virtual items, implying that the game developers can capitalize on the gamers' desire to show off when they have the virtual items by continuing to release new virtual items, particularly the limited editions, in order to boost the gamers' purchase intention. Third, the age can strengthen the impact of continuous intention on the purchase intention, implying that as the gamers age, many continue to play the MOBA games to relieve their work stress. The presence of virtual items is one of the factors that helps them feel more at ease about continuing to play the MOBA games, therefore they will be more likely to purchase the virtual items. Other managerial implications include the game developers to pay more attention to the gaming

mechanism, such as providing a simpler chat column to reach between the gamers, because a good connectivity can help the gamers to feel the flow and make them want to keep playing and eventually purchase the game virtual items. Further, the game developers are suggested to provide more challenging but yet manageable challenges, because the gamers prefer to play the MOBA games when they are having fun.

However, this study has three limitations that need to be addressed. First, this study focused on only the MOBA games, which did not necessarily reflect the overall state of games in general. Future researches are suggested to concentrate on different game genres to acquire a better understanding of the gamers' purchasing intention in the gaming industry. Second, because the majority of the respondents were from Java, the research sample did not accurately reflect the actual structure of the game community in Indonesia. Future researches are suggested to investigate a more representative data of the gamer population in general. Third, this study only utilized the moderation of shopping enjoyment and age. Future researches are suggested to study other moderating variables, such as gender, promotion, and salary.

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