

Effect of Motivation and Family Environment on Addiction Tendencies to Play MOBA Game

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Abstract. The phenomenon of playing Online Battle Arena Multiplayer (MOBA) are increasing. In fact, there are several psychological factors that can lead to the risk of addiction to playing MOBA game. In this study, the dimensions of achievement and immersion on motivation to play games and the dimensions of the relationship in the family environment has a significant effect on MOBA addiction the game.

Keywords: *addiction, MOBA games, motivation to play games, family*

1 Introduction

Technological advances along with the development of the times cannot be denied. Over the past ten years, computer technology has made great progress allowing people around the world to connect and interact through the virtual world *online* [1]. Even though it has a positive impact such as facilitating activities and entertaining its users, technology can also have a negative impact if used excessively [2] or misused. One use of technology that can have a positive or negative impact is playing games.

Playing *games* can be beneficial for health. The study explored the positive impact of the *game* for health including McKanna and her colleagues which uses Puzzle games to stimulate Alzheimer's patient cognition with computer media and mouse, also Burke and his colleagues who focus on stroke motor patients with wiimote devices. In addition to the positive impact, playing *games* is also at risk of negative impacts, one of which is addiction.

A dictionaries play *online games* can give negative effects such as causing lazy and lying behavior in adolescents [2] physical, psychosocial, academic / professional, and behavioral problems [3] [4] [5] to decreasing academic achievement [6] [7]. In some regions, especially Asia, the *game* still gets a negative view and is even considered dangerous for players and the environment because it can lead to addiction and various adverse effects. In 2015 a woman in China who was declared to have disappeared - even died - after ten years, was found to have lived in an internet cafe during this time in order to play the *game* because it was thought to have experienced play addiction *game* [8]. In South Korea, *online game* addiction is one of the most serious public health issues so the government even trained 1043 counselors to handle the case [9].

There are two types of *games*, namely *singleplayer* who played only one person on one computer / device, and *multiplayer* can play more than one person both *offline* and *online*. Local *multiplayer games* that can be played by more than one person in one computer have existed since 1958, then developed to be able to connect multiple computers through a limited network or *Local Area Network* (LAN) in 1970, and became popular in 1990 when internet access was common in the community so it becomes *Online Multiplayer Game* (MOG). MOG is divided into several types, one of which is *Online Multiplayer Battle Arena* (MOBA).

MOBA *game* is a game that plays two teams with each team consisting of five players. Each player uses magical abilities (*Hero*) to destroy the opponent's main object (called *Ancient*, *Vain*, etc.) while maintaining the main object of the team itself. One team is declared victorious if the opponent's main object has been destroyed. Examples of this game are DoTA 2, League of Legend, and Mobile Legend.

Each type of *game* has features that are believed to be able to meet certain psychological needs [10]. Playing MOBA games is related to complex cognitive activities such as *Transcative Memory System and Number Processing Skill*. *Transcative Memory System* is the exchange of information from different levels of knowledge within a group [11] so that it can train communication skills and collaboration between players in MOBA game. [12] research revealed a *longitudinal* link between *Number Processing Skills* and the ability to play MOBA games. Calculations in game MOBA games such as estimating how many opponents can be eliminated before losing a *skill war*, or calculating the waiting period of opponent's and friend's *skills* before they can be used again, are said to be possible to encourage the connection between *Number Processing Skill* and the ability to play MOBA games.

In Indonesia, the phenomenon of playing MOBA games began to stick out in 2017 thanks to *the Mobile Legend game*: Bang Bang which can be downloaded on *smartphone devices*. The game system that is easier to understand and solve than other MOBA games encourages players from various circles to be interested in playing and filling in their spare time even with people who are already known in the real world. However, despite entertaining and providing a number of cognitive benefits, MOBA play activities games are also at risk of causing addiction that even leads to death. In Taiwan, a young man reportedly died after playing an MOBA game titled League of Legend for 24 hours without interruption [13].

Research on addiction to playing *online games* reveals the existence of specific problems related to addiction to playing certain games, one of which is in MOBA game players. [14] found a cognitive bias towards words related to games in World of Warcraft (WoW) players, while [15] reported that the use of *abusive* language (offensive) verbally more common in MOBA player game with an indication of addiction compared to other game players. The main goal to win from opponents by collaborating between team members makes MOBA players game not tolerating irrationality and failure of the members of the team, so that the throwing of attacking words becomes commonplace in the game and the MOBA community every day as recognized by various gaming communities in the virtual universe.

According to Nuyens's research [16] that explores psychological factors related to MOBA game addiction specifically is still small, even though *reward* or social features in MOBA games can encourage excessive game play behavior. In previous research, the motivation to play games to get *rewards* and socialize virtually is a factor related to addiction to playing

online games [17], [18], [19], [20]. Through this research, researchers intend to find out more about the influence of motivation to play *games* on MOBA *game* players.

Motivation to play *the game* (*Motivation of Gaming*) is a boost to activity in *the online game*. Yee classifies the motivation to play games into three main components: *achievement*, *social*, and *immersion*. In MOBA *games*, players can access the ranking features and get prizes in the form of *game* character costumes and various *items* (*achievement*), especially during certain *events*. There are *rewards* in *games* related to compulsive *online* activities [21] and are thought to encourage players to play for a long time. In addition to performing *in-game* achievement, MOBA *game* player can also play with people who are known in the real world (*social*) and themselves of tasks and issues in real life with exciting themselves into the game (*immersion*).

Apart from being influenced by individual internal factors, addiction to playing *games* can be influenced by external factors such as the environment. Tsai's research and colleagues in 2009 involving 1360 scholars demonstrated that the existence of *offline* social support and interaction with family and classmates correlated negatively with internet addiction [22] report that family factors such as the low role of family members can be a risk factor for internet addiction. Indriani states, the lack of family supervision of individuals can be a factor in the poor control of a child's behavior in internet use [23].

According to Moos and Moos [24] family environment is perceived family interaction of individuals as a result of relationships, personal growth, regulation and control of the family. This perception can influence the way an individual adapts to the situation he is facing. The researcher intends to know the influence of the family environment which is divided into *relationship* dimensions, *personal growth*, and *system maintenance*, against the addiction to playing MOBA *games*.

In addition to the motivation to play *games* and the family environment, Hyun et al. in his research revealed the nature and gender related to addiction playing online games type of *Massively Multiplayer Online Role Playing Game* (MMORPG) [22]. Gross reports that more adult men use online networks to play *online games*, while women tend to use social-based applications and visit personal *websites*. Lemmens & Peter in their study found that men spend more time playing *games* than women [25].

Based on the literature and field studies that have been carried out, researchers are interested in knowing whether motivation to play *games*, family environment, age and gender influences the tendency of addiction to play *online the game* on MOBA *game* players. The researcher added the word tendency because the respondents taken in this study came from normal populations or did not have to be addiction patients to play *games*.

2 Method

2.1 Research Subject

A total of 216 respondents filled out the *Google Form* questionnaire distributed via social media, various *online* associations of *game* MOBA players, and private networks. Seven respondents were not MOBA *game* players, so they were not included in the data processing (the remaining 209 respondents consisted of 162 men and 47 women). The age range of respondents was 12-15 years (14 people), 16-19 years (92 people), and 20-25 years (103 people).

2.2 Measuring Instrument

Measurement of addiction to play MOBA games using *Addiction Scale* (GAS) with 21 items ($\alpha = 0.92$) developed by [25]. Each dimension of MOBA game addiction is measured using three items with a 5-point scale model; never, rarely, sometimes, often, very often. The researcher only used two items for each dimension and modified the response range to 4-point scale to avoid the middle / neutral response and summarize the respondent's filling time.

Measurement of game motivation using *Motivation to Play Online Game Questionnaire* (MPOGQ) with 39 items developed by Yee (2007) for dimensions *achievement* ($\alpha = 0.74$) *immersion* ($\alpha = 0.75$) and *social* ($\alpha = 0.77$) [26]. The researcher modified several items so that it was more relevant to the MOBA *game* feature, changed the question to a statement, and used a *4-point scale* model to avoid the neutral response.

The family environment is measured using the *Family Environment Scale* (FES) ($\alpha = 0.86$) developed [27]. R shape scale measuring individual perceptions of his family according to real conditions [28]. The researcher adapted and modified 12 items used in Earls's Gunn research [29]. Harsha measure 10 subscales on *relationship* dimensions, *personal growth*, and *system maintenance* [30]. In addition, the researcher added 8 items to the personal growth dimension and modified the answer format in the right or wrong dichotomy to a *4-point scale* with a range of answers never, rarely, often, very often.

3 Results

Based on analysis data using analysis regression, we can conclude there is a significant effect of *achievement*, *social*, *immersion*, *relationship*, *personal growth*, *system maintenance*, age, and sex towards addiction to playing MOBA *game*.

Based on the minor hypothesis test seen from the regression coefficients and the significance of each independent variable on the MOBA *game* addiction, there are three independent variables with significant regression coefficients (sig. <0.05) influencing the playing addiction of MOBA *games*, namely *achievement* and *immersion* on motivation playing *games*, and *relationships* in the family environment.

4 Discussion

The results of this study indicate that *achievement* and *immersion* which are components of the motivation to play *games* significantly influence the addiction to playing MOBA *games*. This is as stated in Indriani and Winther regarding in- *game rewards* related to playing *online games*. Individuals who are interested in the *achievement* or achievement in the form of *items*, rankings, and other *rewards* in the *game* will continue to play to get it [21].

Immersion has a significant effect on MOBA *game* addiction, in line with the research of Caplan & Yee [31] and Hussain & Griffiths [1] who reported that *immersion* was a significant predictor of problematic MMOG and MMORPG use. *Immersion* into the *game* means forgetting the surroundings and what is happening. By being carried away in the atmosphere of the *game*, individuals can forget problems and unpleasant feelings experienced in the real world. If people want to escape from unpleasant conditions, the activity of playing *the game* can be increased and the risk leads to addictive behavior.

The *social* component of the motivation to play *games* does not significantly influence the addiction to playing MOBA *games*. The community environment of MOBA players who are attached to the impression of being unfriendly as said by players from various *game* communities might actually make individuals reluctant to play with the aim of socialization.

In the literature study and research of Hyun et al. [22] stated that family environment factors are associated with various addiction including playing *online games*. However, in this study, only *relationship* variables specifically affected significantly the addiction to playing MOBA *games*. The existence of a relationship that is not good with the family can provide inconvenience to the individual so that individuals look for a place other than family such as playing *games* to look for positive affect or escape feelings / conditions that are less pleasant.

Personal growth does not have a significant influence on the addiction to playing MOBA *games*. Although there are subscale *achievement orientations and moral-religious emphases*, individuals may be able to separate responsibilities and have fun. So, the effort for achievement and belief in moral values is not affect individual play activities. Individual development is not only derived from the family, but with the environment outside the family, so that might be helped influence on his *independence* or how individuals make decisions, for example to play or not play *games*.

The maintenance system does not have a significant effect on addiction to playing MOBA *games*. The existence of a *system maintenance* in the family may need to be accompanied by other aspects such as the awareness of each family member and supervision of more authorized members. That is, even though arrangements are made in the family, if they are not obeyed they do not affect the behavior of family members, including in playing *games*. In addition, respondents in this study may only refer to family advice so that they do not have certain rules that are formed and must be obeyed. The researcher also argues that there is bias in item *system maintenance* related to the number of regulations in the family (there are many regulations / no rules at all) and the choice of answer items that are less relevant (never, rarely, often, very often).

Age and gender did not significantly influence the playing addiction of MOBA *games*, in contrast to previous studies which reported that these two variables were predictors of the behavior of playing pathological *games online*. In the study of Hyun et al. [22] age is a predictor of addiction behavior playing *online games*. Likewise with gender [1] was declared a significant predictor of addiction to playing MMORPGs, while in Tokar & Baturay research was significant for *game* addiction [32]. The researcher suspects that there are other variables as mediators such as *self-control* to make age and gender significantly influence the respondents. Because, based on field data, MOBA players' environments consist of various ages and backgrounds.

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