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Playing Online Game Increase Aggressive Behaviour of High School Students on 4.0 Century in Papua

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ABSTRACT

Introduction: Once the enormity of online games took over the attention of many teens and children so that it brought a big change. Aggressive behavior among adolescents especially high school students from year to year is increasing both in number and forms of aggressive behavior that is raised. **Objectives:** This study aims to determine the relationship between playing online games and aggressive behavior of high school students in Jayapura. **Methods:** The research method used was analytical research using *cross sectional* design. Study the relationship between two variables in a situation or group of objects using a simple linear regression statistical test. **Result:** The correlation effect of Length Playing Game Online with aggressively behavior of students in High School logistic test results obtained meaningful results where the value of $p = 0,00 < 0.05$. This means that there is an influence or relationship between the lengths of playing online games with the aggressive behavior of high school students. These results indicate that there is a positive relationship between the lengths of playing online games with the aggressive behavior of adolescents. This means that the old variable playing online games can be used as a trigger to predict the emergence of aggressive teenage behavior. The higher the length of playing online games, the higher the aggressive behavior of teenagers, conversely the lower the longer playing online games, the lower the aggressive behavior of teenagers.

1. Introduction

The internet is advancement in information & communication technology, which provides opportunities to get access to information quickly,

precisely and affordably. Now many people know the internet and even many people can already operate it and use the internet for their interests. The proliferation of internet services, such as *play stations* or *Facebook* and the

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use of mobile phones which were initially only visible in urban areas, can now be found in remote areas too. Plus the *Wi-Fi area* or *hotspot* that makes it easy for anyone to connect to the internet network for free by using a *notebook* or laptop device. In addition, there are also many internet cafes with *online gaming* facilities, e-mail, *chat*, *browsing* and Facebook and Twitter social networks that can be used at relatively affordable costs^[1].

The Ministry of Communication and Information (Communication and Information) through its official website in 2015, it is estimated that more than 100 million of the 250 million Indonesians are active users of smart phones in 2018^[2]. The estimate is evidenced by the survey of Indonesian Internet Service Provider Association (APJII) and Technopreneur in 2017, states that as many as 54, 68 %, namely 143.26 million of the total population of Indonesia 262 million people, are Internet users. This figure has increased compared to 2016 as many as 132, 7 million people. Indeed, if viewed from the graph of internet user growth released, from 1998 to 2017, the number of internet users has increased very rapidly, especially in 2016, an increase of 22.5 million internet users compared to 2015^[2].

The Entertainment Software Association (ESA) survey (2013) found that everyone has at least one Smartphone that can be used to play games. While 32% of gamers are children under the age of 18 and around 10% of adolescents aged 10-18 years play online games on average three times a day with duration of 1 hour or more per day^[3].

The latest data released by the *NPD Group* titled *mobile gaming* (2014) shows that *mobile game* players are those who play on *smartphones*, *iPod touches* or *tablets* that play more frequently and in a longer time compared to 2 years ago. The average time spent playing games increased to 57% to more than 2 hours per day in 2014 compared to 1 hour and 20 minutes in 2012 ago. The average amount of playing time at the highest level is in the age range of 6 - 44 years. Children aged 2-12 years spend a proportion of their time playing games than other activities. They spend an average of 2 hours or more to play games. The survey results seem clear that many children are now addicted to playing online games, especially through Android-based smartphones and tablets^[4].

Once the enormity of online games took the attention of many teenagers and minors that brought a big change to the type of children's games today. Of course the difference is very clear when considering the children used to play marbles, kites, chess, yo-yo, tops and balls. Then compared to now that is almost all children who are familiar with online games are no longer interested in playing games like this^[5].

Online games make players addicted so they do everything as long as they can play them. For example, just attacking some teenagers from Pekanbaru desperate to kill the lives of friends because of his online game chips asked by victims to be sold because the perpetrators need money. The same thing is also done by AD and AZ two students from one private vocational high school (SMK) in Pekanbaru have 6 times snatched due to addiction to playing online games. The case shows that they no longer care about what is happening around them. They also cannot control their emotions to get what they want. Some cases occur in parts of the world, *It is likely that this focus will not diminish in the near future, in part because of the enormous media attention garnered when mass killings (The Columbine High School slayings in 1999) are associated with youth who play violent video games (Ferguson, 2007)*. Besides violence Tri Sula elementary students Perwari Hill T Heigh alleged effects of violent games and movies^[6].

A study by psychologists Douglas Jewish and Craig Anderson, shows that there is a possibility that online video game violence might have a stronger effect on aggression against adolescents compared to previous media influences^[7]. Online gaming is a very interesting game and interactive. Game online have the game figured some of them violent behavior, teens will behave recurring violence because they are playing the media game^[8]. Aggressive behavior among adolescents, especially high school students, has increased from year to year, both in number and in the form of aggressive behavior that is raised. BPS in 2015 noted that the number of mass fights between students that occurred in Indonesia increased from 2008 to 108 cases, in 2011 to 210 cases, and 327 cases in 2014.

The phenomenon of adolescent aggressive behavior in the form of physical aggression has occurred a lot, as conveyed by^[9]. Cases of student violence such as brawls occurred in South Tangerang City. This time a student brawl took place on Jalan Bhayangkara, right in front of the Alam Sutera Mosque. The number of students who want to fight is 20 people. In the brawl, students who are known to come from Yuppentek 6 Ciledug, injured two local residents who were parking in the street. The two men were stabbed in the thighs and hands; they were named Mawan and Jepri who tried to break up students who were going to fight^[10].

In addition, there is also the phenomenon of adolescent aggressive behavior in the form of verbal aggression and anger as conveyed by Alamy in 2016, one teenager was killed and one other injured after being beaten and hacked by seven young men using sharp weapons. The beatings occurred because the two victims

and their friends had just visited a cafe on Jalan Kenjeran Surabaya. When they returned home, the victim and his friends who were riding motorbikes crossed Jalan Kenjeran, and from the back appeared seven young men riding three motorbikes. Once overtaking the victim, the seven young men suddenly pulled their motorcycle gas. The victim then got off the motorcycle and rebuked the seven young men. Seven members of the young motorcycle gang did not accept and were angry. They quarreled and fought on Jalan Kenjeran. When seized, one of the motorcycle gang members fell and immediately slashed the victim^[11].

Jayapura State Vocational School 3 is one of the schools in Jayapura and follows the development of technology. At the time of the initial survey by researchers at SMK Negeri 3 Jayapura, it was found that the school did not have rules that prohibited students from bringing cell-phones to school. This is due to various factors, as stated by the student division (Mr. Edi), among others, because many subjects require practice where the practice is usually done until the afternoon so parents can contact the child and also other reasons namely the condition of the area (Jayapura) which it's usually a demo or similar event that makes parents worried and hard to contact if their child does not carry a cell phone.

Based on the description above, it shows that online games are very popular among teenagers today. The rise of online games finally makes teens want to continue to play it. If online game play is played continuously, adolescents will experience addiction to online games and behave aggressively (Dani and Ngesti, 2014). Therefore, the authors are interested in examining whether there is a relationship between playing online games with aggressive behavior in class XI students at SMK Negeri 3 Jayapura City.

1.1 Statement of the Problem

Based on the problem mentioned above we would like to know a relationship playing online games with the aggressive behavior of high school students in Jayapura.

1.2 Research Purposes

The purpose of this study was to determine the relationship of playing online games with aggressive behavior of high class students in Jayapura, Papua.

2. Study Literature

Online Game

(1) Definition

Online games are activities carried out for fun or fun that have rules so that there are winners and some losers. In addition, the game carries the meaning of a contest, physical or mental, according to certain rules, for entertainment, recreation or to win a bet^[5].

According to Eddy Liem, Director of Indonesia Gamer (a lover of games in Indonesia), an online game is a game or game that is played online via the internet, can use a PC (personal computer) or regular game consoles such as PS2, X-Box and the like. As for the Wikipedia dictionary, online games are mentioned referring to a type of games that are played through a computer network, generally played on the internet network. Internet games are generally played by many players at the same time in which one each other cannot know. Usually online games are provided as additional services from online service providers or can be accessed directly through a system provided by the company that provides the game^[5].

Online Games (*Online Games*) is a kind of computer games that utilize computer network. The network that is usually used is the internet network, like, and always uses the technology that exists today, such as modems and cable connections. Usually the online game is provided as an additional service from service providers online^[11].

Online game is a game that is based electronics and visuals. *Online games* are played by utilizing electronic visual media which usually causes radiation to the eyes, so the eyes get tired and are usually accompanied by headaches. *Online games* consist of many types, ranging from simple text-based games to games that use complex graphics and form a virtual world that is occupied by many players at once. In *online games*, there are two main elements, namely *server* and *client*. The *server* administers the game and connects the *client*, while the *client* is the game user who uses the *server's* capabilities. *Online games* can be called a part of social activities because players can interact with each other virtually and often create virtual communities^[8].

Based on Grant, JE & Kim, SW, *online game* graphics technology can be divided into:

(A) Two Dimensions (2D), *games* that adopt this technology are average *games* that are lightweight, not burdening the system. But *games* with 2D image quality are not easy to see when compared to 3D *games*, so the average *online game* now adopts 2.5D technology, which is where the characters played are still 2D but the environment has adopted 3D.

(B) Three Dimensions (3D), Three Dimensional type *games* are *games* with good graphics in reality depictions, most of *these games* have camera shifts up to 360 degrees so that we can see the whole world of *games*. But

the *game* 3D computer asks a fairly high specification in order to see the 3D *game* terse but displayed perfectly^[8].

(2) Types of *online games*

Online games have many types, ranging from simple text-based games to games that use complex graphics and use the visual world occupied by many players at once. The following are the types of *online games* based on the type of game^[10].

(A) *Massively Multiplayer Online First-person shooter games* (MMOFPS), This type of online game takes a first-person perspective so as if the player is in the game in the perspective of the characters being played, where each character has a different ability in the level of accuracy, reflexes and others. This game can involve many people and this game usually takes the *setting of* warfare with military weapons. Examples of this type of game include, *Counter Strike, Call of Duty, Point Blank Quake, Blood, and Unreal*.

(B) *Massively Multiplayer Online Real-time strategy games* (MMOORTS), this type of game emphasizes the greatness of the player's strategy. This game has a special feature where the player must set the game strategy. In RTS, the theme of the game is biased in the form of history (e.g. the *Age of Emperies* series), fantasy (e.g. *Warcraft*) and science fiction (e.g. *Star Wars*).

(C) *Massively Multiplayer Online Role-Playing games* (MMORPG), this type of game usually plays the role of fantasy characters and collaborates to knit a story together. RPG usually leads to collaboration rather than competition. Generally in RPGs, the players are joined in one group. Examples of this game genre are *Ragnarok Online, The Lord of the Rings Online: Shadows of Angmar, Final Fantasy, DotA*.

(D) *Cross-platform online play*, Types of games that can be played online with different devices. Currently console game machines (*console games*) are starting to develop into computers that are *equipped with open source networks (open source networks)*, such as *dream cast, play station 2 and Xbox* which have online functions.

(E) *Massively Multiplayer Online Browser Game*, Games played on browsers such as Mozilla Firefox, Opera or Internet Explorer. A simple *online game* with a single player can be played with the browser via HTML and *HTML scripting* technology (JavaScript, ASP, PHP, and MySQL).

(F) *Simulation games*, this type of game aims to member experience through simulation. There are several types of simulation games, including *life simulation games, construction and management simulation games* and *vehicle simulation*. In *life simulation games*, the player is responsible for a shop or character and fulfills the store's needs like

real life, but in the virtual realm. Character has the needs and lives like humans, such as work activities, socializing, eating, shopping and so on. Usually these characters live in a virtual world filled with characters that other players play. An example of the game is Second Life.

(G) *Massively multiplayer online games* (MMOG), Players play in a large scale world (> 100 players), where each player can interact directly like the real world. MMOG emerged along with the development of *broadband internet access* in developed countries, thus allowing hundreds, even thousands of players to play together.

(3) Impact of Playing *Online Games* on Teenagers.

Besides having a positive impact *online games* also have a negative impact. The positive impact in playing this online game is the impact that can be said to give benefits /influence both for its users. Positive impact *online games* can be as follows^[12]:

(A) Can master the computer.

(B) By playing *online games* directly, you can understand the English language used in the game which is not uncommon for players to interpret their own words that they don't know.

(C) From this online game you can add friends.

(D) For those who already have an ID from one of their ready-made *online games* (GG) they can sell it to others and eventually get money from the proceeds.

Meanwhile the negative impact of playing *online games* is the unfavorable impact for online game users such as:

(A) Someone who plays *online games* is a waste of time and money.

(B) Playing *online games* makes people addicted.

(C) Sometimes more willing to give up school to play *online games* (skip school).

(D) By playing *online games* can also make sure of the time, to eat, pray, time to go home, etc.

(E) Too often dealing with monitors in the naked eye can make the eyes become a minus.

(F) A child is often lying to his parents because at the beginning he said goodbye to go to school it turns out he skipped school to play *online games*.

Margaretha Soleman put forward the social, physical adverse effects of addiction to playing *online games*, as follows:

(1) Social, relationships with friends and family become tenuous because their time together becomes far less. Adolescent association is only limited to internet *online games*, so that makes online game addicts become isolated from friends and real social environment. Social skills are diminished, making it increasingly difficult to connect with others. Gamers' behavior becomes rude and

aggressive because it is influenced by what is seen and played in internet games *online games*.

(2) Psychic, teenage mind becomes constantly thinking about the game being played, difficulty concentrating on study, work, often skipping, or avoiding work. Make teens become indifferent, indifferent, less concerned about things happening in the surrounding environment. Do anything to play games, such as lying, stealing money, etc. Being accustomed to only interacting one-way with computers makes teens become closed, it is difficult to express themselves when in a real environment.

(3) Physical, exposure to light from computer radiation can damage the nerves of the eye and brain. Heart health decreases due to not sleeping all night playing internet games online. Kidney and stomach are also affected due to a lot of sitting, drinking less, forgetting to eat because of the fun of playing. The negative impact of the other, namely body weight decreased due to forgetting to eat, or it could also increase because a lot of eating snacks and rarely exercise. Easily tired when doing physical activity, body health decreases due to lack of exercise. The most severe is that it can cause death^[13].

3. Method of Research

The research method used in this study is a quantitative method. Quantitative method is a research method that uses statistics in the form of numbers ranging from collecting data, interpreting data, displaying the results, to drawing conclusions from the study. (Lubis 2018). This type of research uses analytic methods with cross sectional research design. This research was conducted at the State Vocational School 3 Jayapura in March to April 2019.

Populations in this study are teenagers of online game players aged 16-17 years old at Vocational School 3 Jayapura. The sample of this study was taken using the consecutive sampling method, where all subjects who came and met the selection criteria were included in the study until the number of subjects needed was fulfilled.

(1) Inclusion criteria; (a) Teenagers aged 16-17 years, (b)online game players.

(2) Exclusion Criteria; (a) Adolescents who refuse to take part in research, (b) Teenagers with a family history of mental disorders.

The data collection is done by way of distributing questionnaires to a sample which would be the respondent and signed *informed consent*. The questionnaire is used to see the level of online game play and for aggressive behavior. Researchers conducted themselves in conducting data collection by first asking for permission from the school.

Data will be analyzed by entering data from the questionnaire into a computer program using the SPSS pro-

gram. After the data is processed then the data is analyzed descriptively and analytically. Characteristics of respondents and categorical scale data descriptions are described in the form of frequency and percent distribution in the form of tables and analysis of the relationship between variables is done by bivariate analysis using a simple regression hypothesis test.

4. Result of Study

4.1 General Description of Research Location

State Vocational School 3 Jayapura is one of the oldest Vocational Schools among a series of Vocational Schools in Jayapura and even throughout the Land of Papua. The address of SMK Negeri 3 is on the Abepura highway, Kota Raja, RT 002 RW 007 Wahno Village, Abepura District, Jayapura City, and Papua Province. Telephone number 0967-581289, ZIP code 99225, fax 0967-581781, school area of 30,000 m². The total number of students is 1,651 students consisting of 706 students of class X, 527 students of class XI and 418 students of class XII. State Vocational School 3 Jayapura has 10 Department / Program expertise, with 14 Skill Competencies, namely:

(1) Study Program Building Skills: (a) Stone & concrete Construction Engineering Skills Competencies, (b) Wood Construction Engineering Skills Competencies, Mechanical Image Building.

(2) Electronics Studies Expertise Program.

(3) Electricity Utilization Study Skills Program.

(4) Mechanical Studies Skills Program; (a) Machining Engineering Skills Competencies, (b) Welding Engineering Skills Competencies.

(5) Automotive Study Skills Program; (a) Light Vehicle Engineering Expertise Competencies, (b) Motorcycle Engineering Expertise Competencies.

(6) Mining Geology Study Skills Program.

(7) Survey Study and Mapping Study Skills Program.

(8) Plumbing and Sanitation Study Skills Program

(9) Computer and Information Studies Skills Program, Computer & Network Engineering Skills Competencies.

(10) Renewable Energy Study Skills Program

4.2 Characteristics of Respondents

(1) Age

Table 1. Distribution of Respondents by Age

Age	amount	Presentation (%)
15 years	10	4.5
16 years	76	34.2
17 years	97	43.7

18 years	39	17.6
Total	222	100

From table 1 shows that of 222 respondents, 15 years old 10 people (4.5%), 16 years old 76 people (34.2%), 17 years old 97 people (43.7%) and 39 years old 18 people (17.6%).

(2) Gender

Table 2. Distribution of Respondents by Gender Adolescents

Gender	amount	Presentation (%)
Male	194	87.4
women	28	12.6
Total	222	100

From table 2 shows that of 222 respondents who were male as many as 194 people (87.4%) and those who were female as many as 28 people (12.6%).

(3) Frequency of playing *online games*

Table 3. Distribution of Respondents Based on Frequency of Playing *Online Games* in Teens

Frequency of playing <i>online games</i>	amount	Presentation (%)
1	45	20.3
2	49	22.1
3	44	19.8
4	24	10.8
5	23	10.4
6	10	4.5
7	7	3.2
8	3	1.4
9	1	0.5
10	6	2.7
11	1	0.5
12	2	0.9
13	2	0.9
14	2	0.9
15	1	0.5
16	1	0.5
17	1	0.5
Total	222	100

From table 3 shows that the frequency of playing *online games* once a day is 45 people (20.3%), 2x a day 49 people (22.1%), 3 times a day 44 people (19.8%), 4 times a day 24 people (10.8) %, 5 times daily 23 people (10.4%), 6 times a day 10 people (4.5%), 7 times a day 7 people (3.2%), 3 times a day 3 people (1.4%), 9 times a day as many as 1 person (0.5%), 10 times a day as many as 6 people (2.7%), 11 times a day as many as 1 person (0.5%), 12 times a day as many as 2 people (0.9%), 13 times a day as many as 2 people (0.9) , 14 times a day for 2 people (0.9%), 15 times a day for 1 person (0.5%), 16 times a day for 1 person (0.5%) and 17 times a day for 1 person (0.5%).

(4) Long time playing *online games*

Table 4. Distribution of Respondents Based on Length of Playing *Online Games* in Teenagers

Long time playing <i>Online Games</i>	amount	Presentation (%)
1	16	7.2
2	26	11.7
3	24	10.8
4	26	11.7
5	18	8.1
6	21	9.5
7	11	5
8	17	7.7
9	8	3.6
10	11	5
11	3	1.4
12	10	4.5
13	2	0.9
14	2	0.9
15	3	1.4
16	2	0.9
17	6	2.7
18	1	0.5
19	4	1.8
20	4	1.8
21	7	3.2
Total	222	100

Source: primary data, 2019.

From table 4 shows that the frequency of playing *online games* a day, 1 hour is 16 people (7.2%), 2 hours is 26

people (11.7%), 3 hours is 24 people (10.8%), 4 hours is 26 people (11.7 %), 5 hours of 18 people (8.1%), 6 hours of 21 people (9.5%), 7 hours of 11 people (5%), 8 hours of 17 people (7.7%), 9 hours of 8 people (3.6 %), 10 hours by 11 people (5%), 11 hours by 3 people (1.4%), 12 hours by 10 people (4.5%), 13 hours by 2 people (0.9%), 14 hours by 2 people (0.9 %), 15 hours of 3 people (1.4%), 16 hours of 2 people (0.9%), 17 hours of 6 people (2.7%), 18 hours of 1 person (0.5%), 19 hours of 4 people (1.8 %), 20 hours were 4 people (1.8%) and 21 hours were 7 people (3.2%).

(5) The level of attachment to *online games*

Table 5. Distribution of Respondents by Level of Attachment to *online games*

Level of Attachment with <i>Online Games</i>	amount	Presentation (%)
Moderate	117	52.7
Height	105	47.3
Total	222	100

From table 5 shows that of 222 respondents the level of attachment to *online games* in the moderate category was 117 people (52.7%) while those in the high category were 105 people (47.3%).

(6) Behavior

Table 6. Distribution of Respondents Based on Behavior in Adolescents

Behavior	amount	Presentation (%)
Aggressive	152	68.5
Non aggressive	70	31.5
Total	222	100

From table 6 shows that of 222 respondents, 70 people (31.5%) did not behave aggressively and 152 people (68.5%) behaved aggressively.

4.3 Bivariate Analysis

From table 7 shows that out of 45 people who play *online games* once a day 12 people (26.70%) behave in an aggressive manner and 33 people (73.30%) who behave aggressively, out of 49 people who play *online games* 2 times a day that behaves non-aggressively as many as 18 people (36.70%) and who behaves aggressively as many as 31 people (63.30%), out of 44 people who play *online games* 3 times a day who behave non-aggressively as many as 8 people (18 , 20%) and those who behave aggressively as many as 36 people (81.20%), out of 24 people who play *online games* 4 times a day who behave

non-aggressively as many as 7 people (29.20%) and who behave aggressively as many as 17 people (70.80%).

Table 7. Relationship of Frequency of Playing *Online Games* with Aggressive Behavior

Variable	Frequency (times)	Aggressive behavior		Total	P value
		Not aggressive	aggressive		
Frequency of Playing <i>Online Games</i>	1	12 26.70%	33 73.30%	45 100%	0871
	2	18 36.70%	31 63.30%	49 100%	
	3	8 18.20%	36 81.20%	44 100%	
	4	7 29.20%	17 70.80%	24 100%	
	5	12 52.20%	11 47.80%	23 100%	
	6	6 60.0%	4 40.0%	10 100%	
	7	3 42.90%	4 57.10%	7 100	
	8	2 66.70%	1 33.30	3 100%	
	9	1 100%	0 0.00%	1 100%	
	10	0 0.00%	6 100%	6 100%	
	11	0 0.00%	1 100%	1 100%	
	12	0 0.00%	2 100%	2 100%	
	13	0 0.00%	2 100%	2 100%	
	16	0 0.00%	2 100%	2 100%	
	17	0 0.00%	1 100%	1 100%	
	18	1 100%	0 0.00%	1 100%	
	20	0 0.00%	1 100%	1 100%	
	Total	70 31.50%	152 68.50%	222 100%	

From 23 students who play *online games* as much as five times a day behaving aggressively as many as 12 people (52.20%) and who behave aggressively as many as 11 people (47.80%), of the 10 people who play *online games* 6 times a day that do not behave aggressively as many as 6 people (60%) and who behave aggressively as many as 4 people (40%), out of 7 people who play *online games* 7 times a day who behave non-aggressively as many as 3 people (42.90%) and who behave aggressively as much 4 people (57.10%), out of 3 people who play *online games*

8 times a day who behave non-aggressively as many as 2 people (66.70%) and who behave aggressively as many as 1 person 9 (33.30%), from 1 person who played *online games* 9 times a day who did not behave aggressively as many as 1 person (100%), out of 6 people who played *online games* 10 times a day who behaved a magnitude of 6 people (100%).

Table 8. Correlation the Length Play *Online Games* with Aggressive Behavior

Variable	Length (Hours)	Aggressive behavior		Total	P value	
		Not aggressive	aggressive			
Length Playing Game Online	1	8 50.0%	8 50.0%	16 100%	0,000	
	2	19 73.10%	7 26.90%	26 100%		
	3	11 45.80%	13 54.20%	24 100%		
	4	11 42.30%	15 57.70%	26 100%		
	5	5 27.80%	13 72.20%	18 100%		
	6	2 9.50%	19 90.50%	21 100%		
	7	3 27.30%	8 72.70%	11 100		
	8	7 41.20%	10 58.80%	17 100%		
	9	0 0.00%	8 100%	8 100%		
	10	1 9.10%	10 90.90%	11 100%		
	11	0 0.00%	3 100%	3 100%		
	12	2 20.00%	8 80.00%	10 100%		
	13	0 0.00%	2 100%	2 100%		
	14	0 0.00%	2 100%	2 100%		
	15	0 0.00%	3 100%	3 100%		
	17	0 0.00%	2 100%	2 100%		
	20	0 0.00%	6 100%	6 100%		
	21	0 0.00%	1 100%	1 100%		
	22	0 0.00%	4 100%	4 100%		
	23	1 25.00%	3 75.00%	4 100%		
	24	0 0.00%	7 100%	7 100%		
	Total		70 31.50%	152 68.50%		222 100%

From 1 people who play *online games* 11 times a day

that behaves aggressively as many as 1 (100%), from 2 people who play *online games* as much as 12 times a day that behaves aggressively as much as 2 (100%), from 2 people who play the game online as many as 13 times a day who behave aggressively by 2 people (100%), out of 2 people who play *online games* as much as 16 times a day who behave aggressively as much as 2 people (100%), from 1 person who plays *online games* 17 times a day who behaves 1 person aggressive (100%), from 1 person who plays *online games* 18 times a day who behaves non-aggressively by 1 person (100%), from 1 person who plays *online games* 20 x a day who behaves aggressively by 1 person (100%). The probability value of this variable is 0.871.

Table 8 shows that out of 16 people who play *online games* 1 hour a day who behave non-aggressively as many as 8 people (50%) and who behave aggressively as many as 8 people (50%), out of 26 people who play online games 2 hours a day who behave not aggressive as many as 19 people (73.10%) and those who behave aggressively as many as 7 people (26.90%), out of 24 people who play online games 3 hours a day who behave non-aggressively as many as 11 people (45.80%) and who 13 people behave aggressively (54.20%), out of 26 people who play online games 4 hours a day who behave non-aggressively by 11 people (42.30%) and those who behave aggressively by 15 people (57.70%), from 18 people who play online games 5 hours a day who behave non-aggressively as many as 5 people (27.80%) and who behave as much as 13 people (72.20%).

From 21 people who play online games for 6 hours a day behaving aggressively as much as 2 (9.50%) and who behave Agree shifts as many as 19 people (90.50%), from 11 people who play online games for 7 hours a day 3 people (27.30%) who did not behave aggressively and 8 people (72.70%) behaved aggressively, out of 17 people who played online games 8 hours a day who behaved 7 people (41.20%) and those who behave aggressively as many as 10 people (58.80%), out of 8 people who play online games 9 hours a day and those who behave aggressively as many as 8 people (100%), out of 11 people who play online games 10 hours a day who behave non-aggressively as many as 1 person (9.10%) and those who behave aggressively as many as 10 people (90.90%), out of 3 people who play online games 11 hours a day who behave aggressively as many as 3 people (100%), out of 10 people who play games online 12 hours a day who behave non-aggressively as many as 2 people (20%) and who behave aggressive as many as 8 people (80%), out of 2 people who play online games 13 hours a day who behave in an aggressive manner as many as 2 people (100%).

From 2 people who play online games 14 hours a day who behave aggressively as much as 2 (100%), from 3 people who play online games 15 hours a day who behave aggressively as many as 3 people (100%), from 2 people who play online games 17 hours a day who behave aggressively by 2 people (100%), from 6 people who play online games 20 hours a day who behave aggressively by 6 people (100%), from 1 person who plays online games 21 hours a day who behaves aggressively by 1 people (100%), from 4 people who play online games 22 hours a day who behave aggressively as many as 4 people (100%), out of 4 people who play online games 23 hours a day who behave non-aggressively by 1 person (25%) and who aggressive behavior as many as 3 people (75%), out of 7 people who play online games 24 hours a day who behave aggressively as many as 7 people (100%). The probability value of this variable is 0,000.

Table 9. Relationship between the levels of attachment to online games with aggressive behavior

Variable	The level of attachment to online games	Aggressive Behavior		Total	Pvalue
		Not aggressive	aggressive		
Level of Attachment with Online Games	Is	60 51.30%	57 48.70%	117 100%	0,000
	High	10 9.50 %%	95 90.50%	105 100%	
Total		70 31.50%	152 68.50%	222 100%	

Table 9 shows that out of 117 people who engaged in online gaming in the medium category, 60 people (51.30%) behaved in an aggressive manner and 57 people (48.70%) who behaved aggressively, out of 105 people who were connected. with online games in the high category, 10 people (9.50%) did not behave aggressively and 95 people (90.50%) behaved aggressively. The probability value of this variable is 0, 00.

4.4 Multivariate Analysis

Summary Model			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	206,693 ^a	.271	.380
Estimation is terminated at iteration number 5 because the parameter estimate is changed by less than.001.			

The *Model Summary* table above, it can be seen that the model by entering independent variables turns out to be a difference in the estimation of its parameters (-2 Log likelihood) of 206,693 points. If seen, the value of R Square of 27, 1 % (Cox & Snell) and 38.0% (Nagelkerke). Thus, the bias is interpreted that the proportion of variance diagnosed with aggressive behavior that is commonly explained by the frequency of playing online games, the length of playing online games and the level of attachment to online games is 38.0%.

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	3,286	8	.915

The *Hosmer and Lemeshow Test* table explains that the Chi-square test value obtained was 3.286 with a value of $p = 0.915$. The meaning of this value is to accept the null hypothesis with the following hypothesis:

Ho: The model has sufficiently explained the data (*Godless of Fit*)

Ha: The model does not adequately explain the data

So, with a value of $p = 0.915 > 0, 05$, it can be concluded that the null hypothesis is accepted meaning the model has sufficiently explained the data.

Variables in the Equation								
		B	SE	Wald	df	Sig.	95% CI for Exp (B)	
							Lower	Upper
Step 1 ^a	Frequency Playing Game Online	-.284	.082	12,036	1	.001	753	642 .884
	Length Game Online	.239	.062	15,047	1	.000	1,270	1,126 1,434
	Game Online Levels (1)	-1.495	.440	11,528	1	.001	.244	.095 .532
	Constant	1,325	.508	6,808	1	.009	3,763	

The variable frequency of playing online games has a value of $p = 0.001 < 0, 05$, the variable length of playing online games has a value of $p = 0,000 < 0.05$ and the vari-

able level of attachment to online games has a value of $p = 0.001 < 0.05$, which means that there is a relationship between frequency, length of time playing online games and the level of attachment to online games with aggressive behavior in adolescents of class XI in V State Vocasional 3 Jayapura. For the risk of each independent variable, it is seen from the value of Exp (B), with the following results:

(1) Variable frequency of online game play, OR value of frequency of online game play is 0.753 less than 1, so it is a protective and significant factor because the *Lower* value is 0.642 and *Upper* 0.884 does not contain a value of 1.

(2) Variable length of playing online games, OR Value old variable playing online games is 1,270 greater than 1 so it is a risk factor and significant because the value of *Lower* 1.126 and *Upper* 1.434 does not contain a value of 1. This can mean that people who have long played online games have a risk of 1.126 times to behave aggressively compared to people who play their online games fast.

(3) Variable level of attachment to online games, OR value The level of attachment to online games is 0.224 less than 1, so it is a protective and significant factor because the value of *Lower* 0.095 and *Upper* 0.532 does not contain a value of 1.

5. Discussion of study

(1) Frequency of playing online games.

Based on table 5 it can be explained that the frequency distribution of playing online games for class XI teenagers is 1 x daily as many as 45 people (20.3%), twice daily 49 people (22.1%), 3 x daily as many as 44 people (19.8%), 4 x 24 people a day (10.8%), 5 times a day 23 people (10.4%), 6 times a day 10 people (4.5%), 7 times a day 7 people (3.2%), 8 times a day 3 people (1.4%), 9 times a day as many as 1 person (0.5%), 10 times a day are 6 people (2.7%), 11 times a day are 1 person (0.5%), 12 times a day are 2 people (0.9%), 13 times a day 2 people (0.9%), 14 times a day 2 people (0.9%), 15 times a day 1 person (0.5%), 16 times a day 1 person (0.5%) and 17 times a day 1 person (0.5%).

The average frequency of playing online games is 3,77 times a day and the total number of times playing online games is from 222 respondents 836 times a day. This is because online games are rampant and are known by all types of people. There are several factors that influence, namely, the availability of internet facilities at home, as well as the availability of internet cafes that provide 24 hours of gaming time.

(2) Long time playing online games.

From table 6 shows that the frequency of playing online games a day, 1 hour is 16 people (7.2%), 2 hours is 26 people (11.7%), 3 hours is 24 people (10.8%), 4 hours is 26 people (11.7%), 5 hours of 18 people (8.1%), 6 hours of 21 people (9.5%), 7 hours of 11 people (5%), 8 hours of 17 people (7.7%), 9 hours of 8 people (3.6%), 10 hours by 11 people (5%), 11 hours by 3 people (1.4%), 12 hours by 10 people (4.5%), 13 hours by 2 people (0.9%), 14 hours by 2 people (0.9%), 15 hours of 3 people (1.4%), 16 hours of 2 people (0.9%), 17 hours of 6 people (2.7%), 18 hours of 1 person (0.5%), 19 hours of 4 people (1.8%), 20 hours were 4 people (1.8%) and 21 hours were 7 people (3.2%).

The average length of playing online games is 7, 34 hours per day and the total length of playing online games from 222 respondents is 1630 hours each day. There are several factors that affect a person playing a long time online games are the lack of attention from the people closest to them and the lack of activities that sometimes make online games a sought-after escape.

(3) The level of attachment to online games.

From table 7 shows that of 222 respondents the level of attachment to online games in the moderate category was 117 people (52.7%) while those in the high category were 105 people (47.3%). There are several factors that affect a person's level of attachment to online games, namely, depression, lack of control and lack of environmental activities and parenting from parents.

According to Soleman, 2010 playing online games can have a negative impact both socially, psychologically and physically. Socially, relationships with friends and family become tenuous because their time together becomes less and makes someone less concerned about the things that happen around us^[14]. It also makes it so closed that it is difficult to express them when in a real environment. Psychologically, a person's mind becomes constantly thinking about the game being played. His feelings will become anxious, frustrated and angry when not playing games. Physically, it will disrupt his health. Someone will forget to eat when they are too enjoying the game. Body health decreases due to lack of exercise and becomes easily tired when doing physical activity.

(4) Behavior.

Someone who has a level of attachment to online games will give a negative influence or effect on behavior. From table 8 shows that of 222 respondents, 70 people (31.5%) did not behave aggressively and 152 people (68.5%) behaved aggressively. According to Yee in 2010, someone who is bound by online games will become anxious, frustrated and angry when not playing games, feeling guilty when playing, continues to play even though

they no longer enjoy and have problems in social life or relationships with others and in financial life.

(5) The relationship between the frequencies of playing online games with aggressive behavior.

From table 9 shows that out of 45 people who play online games once a day 12 people (26.70%) behave in an aggressive manner and 33 people (73.30%) who behave aggressively, out of 49 people who play online games 2 times a day that behaves non-aggressively as many as 18 people (36.70%) and who behaves aggressively as many as 31 people (63.30%), out of 44 people who play online games 3 times a day who behave non-aggressively as many as 8 people (18, 20%) and those who behave aggressively as many as 36 people (81.20%), out of 24 people who play online games 4 times a day who behave non-aggressively as many as 7 people (29.20%) and who behave aggressively as many as 17 people (70, 80%).

From 23 people who play online games 5 times a day who behave non-aggressively as many as 12 people (52.20%) and who behave aggressively as many as 11 people (47.80%), out of 10 people who play online games 6 times a day who behave not aggressive as many as 6 people (60%) and those who behave aggressively as many as 4 people (40%), out of 7 people who play online games 7 times a day who behave non-aggressively as many as 3 people (42.90%) and who behave aggressively as much as 4 people (57.10%), from 3 people who play online games 8 times a day who behave non-aggressively as many as 2 people (66.70%) and who behave aggressively as many as 1 person 9 (33.30%), from 1 person who play online games 9 times a day who behave non-aggressively as many as 1 person (100%), out of 6 people who play online games 10 times a day who behave aggressively as many as 6 people (100%).

From 1 person who plays online games 11 times a day who behaves aggressively as much as 1 person (100%), from 2 people who play online games 12 times a day who behaves aggressively as much as 2 people (100%), from 2 people who plays online games as many as 13 times a day who behave aggressively as many as 2 people (100%), from 2 people who play online games as much as 16 times a day who behave aggressively as many as 2 people (100%), from 1 person who plays online games 17 times a day who behaves aggressively as many as 1 person (100%), from 1 person who plays online games 18 times a day who behaves non-aggressively by 1 person (100%), from 1 person who plays online games 20 x a day who behaves aggressively by 1 person (100%).

From the logistical test results obtained are not meaningful results where the value of $p = 0.871 > 0,05$ then H_0 is rejected. This means that there is no influence between the

frequencies of playing online games with aggressive behavior or there are other factors that influence aggressive behavior in class XI adolescents in Vocational State 3 Jayapura Elementary School. This study is in line with Fitrotun and Kustiningsi (2017) about the relationship between the frequency of playing online games with aggressive behavior in XI IPS adolescents at Muhammadiyah 7 High School in Yogyakarta with $p = 0.066$ ($0.066 > 0.05$). This means there is no relationship between the frequencies of playing online games with the aggressive behavior of teenagers because there are still many other factors.

The OR value of the frequency of playing online games is 0.753 smaller than 1, so it is a protective and significant factor (significant) because the value of *Lower* 0.642 and *Upper* 0.884 does not contain a value of 1. Protective factor (protective factor) is a term used to refer to a balancing factor or one that protect against risk factors (factors that give rise to risk). This means that the frequency of playing online games can work or can help if someone has got a risk factor, so as to reduce the risk factor.

The factors that influence so that in this study makes the frequency of playing online games have no influence on the aggressive behavior of adolescents is because teens who play online games are high frequency (many times a day) but the time or duration is only short (only a few hours even only in minutes count) is inversely proportional to students whose frequency of playing online games is short but the duration or time is very long.

Based on Sarwono in 2014, there are several factors that cause a person to behave aggressively including, social (environment), personal (personal individual), culture, situational, mass media and domestic violence. Meanwhile, according to Koeswara (2013), the factors that cause aggressive behavior are poverty, air temperature, and the role of violent learning, frustration, generational inequality, anger, erroneous disciplinary processes and biological factors^[15].

(6) Old relationship playing online games with aggressive behavior

There are 16 samples who play online games 1 hour a day who behave non-aggressively as many as 8 people (50%) and who behave aggressively as many as 8 people (50%), out of 26 people who play online games 2 hours a day who behave not aggressive as many as 19 people (73.10%) and those who behave aggressively as many as 7 people (26.90%), out of 24 people who play online games 3 hours a day who behave non-aggressively as many as 11 people (45.80%) and who 13 people behave aggressively (54.20%), out of 26 people who play online games 4 hours a day who behave non-aggressively by 11 people (42.30%) and those who behave aggressively by 15 peo-

ple (57.70%), from 18 people who played online games 5 hours a day who did not behave aggressively as many as 5 people (27.80%) and who behaved aggressively as many as 13 people (72.20%).

From 21 people who play online games 6 hours a day who behave non-aggressively as many as 2 people (9.50%) and who behave aggressively as many as 19 people (90.50%), out of 11 people who play online games 7 hours a day who behave no aggressive as many as 3 people (27.30%) and those who behave aggressively as many as 8 people (72.70%), out of 17 people who play online games 8 hours a day who behave non-aggressively as many as 7 people (41.20%) and who behave aggressive as many as 10 people (58.80%), from 8 people who play online games 9 hours a day and those who behave aggressively as many as 8 people (100%), out of 11 people who play online games 10 hours a day who behave non-aggressively as much as 1 person (9.10%) and those who behave aggressively as many as 10 people (90.90%), out of 3 people who play online games 11 hours a day who behave aggressively as many as 3 people (100%), out of 10 people who play online games 12 hours a day who behaves non-aggressively as many as 2 people (20%) and who behave aggressive as many as 8 people (80%), from 2 people who play online games 13 hours a day who behave aggressively as many as 2 people (100%).

From 2 people who play online games 14 hours a day who behave aggressively as many as 2 people (100%), from 3 people who play online games 15 hours a day who behave aggressively as many as 3 people (100%), from 2 people who play online games 17 2 hours a day who behave aggressively by 2 people (100%), from 6 people who play online games 20 hours a day who behave aggressively by 6 people (100%), from 1 person who plays online games 21 hours a day who behaves aggressively by 1 person (100%), from 4 people who play online games 22 hours a day who behave aggressively by 4 people (100%), from 4 people who play online games 23 hours a day who behave non-aggressively by 1 person (25%) and who behave aggressive as many as 3 people (75%), from 7 people who play online games 24 hours a day who behave aggressively as many as 7 people (100%).

From the Logistic test results obtained meaningful results where the value of $p = 0,00 < 0.05$ then H_a is accepted. This means that there is an influence or relationship between the lengths of playing online games with the aggressive behavior of teenagers in class XI Vocational school 3 Jayapura. These results indicate that there is a positive relationship between the lengths of playing online games with the aggressive behavior of adolescents. This means that the old variable playing online games can be

used as a trigger to predict the emergence of aggressive teenage behavior. The higher the length of playing online games, the higher the aggressive behavior of teenagers, conversely the lower the longer playing online games, the lower the aggressive behavior of teenagers.

The length of playing online games gives enough influence in measuring the aggressive behavior of teenagers. This is because the magnitude of the effective contribution of time playing online games against juvenile aggressive behavior seen $r^2 = 0.222$ or 22, 2 %, so long playing online games can show the effect of the measure aggressive behavior of teenagers. This shows that there are 77,8 % of other variables that influence adolescent aggressive behavior, outside the old variable playing online games. These variables include biological, psychological, anger, situational, environmental, social, role models of violence, generation disparities and erroneous disciplinary factors.

The OR value of the old variable playing online games is 1,270 greater than 1 so it is a risk factor and is significant because the *Lower* 1.126 and *Upper* 1.434 values do not contain a value of 1. This means that people who have long played online games have a risk of 1.126 times to behave aggressively compared to people who play online games are lacking or fast.

The results of this study are consistent with the opinions expressed by Anis Tiani (2014) saying there is a very significant positive relationship between playing online games with aggressive behavior. Effective contribution is between variables playing online games with children's aggressive behavior by 61%.

The results of this study turned out to be a positive relationship between the lengths of playing online games with the aggressive behavior of adolescents who have a long time playing online games that are high in teens will tend to behave aggressively. This is because adolescents are good observers, so adolescents tend to want to do mental activities that are focused on real objects or events.

Bandura 2007 states that is aggressing behavior is the result of social learning processes through observation of the social world. By watching the violence scene for a long time, the learning process of the violent model resulted in aggressive behavior^[16]

(7) Relationship between the levels of attachment to online games with aggressive behavior.

Table 11 shows that out of 117 people who engaged in online gaming in the medium category, 60 people (51.30%) behaved in an aggressive manner and 57 people (48.70%) who behaved aggressively, out of 105 people who were connected. with online games in the high category, 10 people (9.50%) did not behave aggressively and

95 people (90.50%) behaved aggressively.

From the Logistic test results obtained meaningful results where the value of $p = 0,00 < 0,05$ then H_a is accepted. This means that there is an influence or relationship between the levels of attachment to online games with the aggressive behavior of teenagers in class XI in Negeri 3 Jayapura. These results indicate that there is a positive relationship between the levels of attachment to online games with aggressive behavior of adolescents. This means that the variable level of attachment to online games can be used as a trigger to predict the emergence of aggressive behavior in adolescents. The higher the level of attachment, the higher the aggressive behavior of adolescents, conversely the lower the level of attachment, the lower the aggressive behavior of adolescents.

The level of attachment to online games gives enough influence in measuring the aggressive behavior of adolescents. This is because the amount of effective contribution of the level of online game attachment to adolescent aggressive behavior seen $r^2 = 0,276$ or 27,6 % so that the level of online game attachment can show the effect in measuring the aggressive behavior of adolescents. This shows that there are 72,4 % of other variables that influence adolescent aggressive behavior, attachment level variables outside of online games. These variables include biological, psychological, anger, situational, environmental, social, role models of violence, generation disparities and erroneous disciplinary factors.

The OR value of the variable level of attachment to online games is 0.224 less than 1, so it is a protective and significant factor because the value of Lower 0.095 and Upper 0.532 does not contain a value of 1. Protective factor (protective factor) is a term used to refer to a balancing factor or that protects it from risk factors (factors that give rise to risk). This means the level of attachment to online games can work or can help if someone has got a risk factor, so as to reduce the risk factor.

The results of this study turned out to be in accordance with the opinion expressed by Merita (2015) which says that there is a relationship between online game addiction and aggressive behavior. The results of this study are also linked to *social learning theory* which states that an aggressive playing an online game, a right to stimulate aggressive behavior as adolescents will imitate what they see when playing games online^[17].

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