The Role of Electronic Games in the Emergence of Aggressive Behavior among adolescent students–A Field Study in Some Secondary Education Institutions in the Provinces of Tizi Ouzou and Boumerdes –

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Summary of the Study:

Play is considered a natural inclination and an important activity that individuals engage in to satisfy their basic needs, whether physical, psychological, mental, or social. It accompanies individuals in various stages of their development and takes on different forms according to their age. Electronic games are among the most significant acquisitions of the information and communication technology revolution, which have gained wide acceptance and popularity among both children and adults. This has sparked extensive debate and varying opinions among researchers about the emergence of certain negative effects as a result of excessive use of electronic games, such as addiction to their use and the appearance of aggressiveness in thinking, emotions, and behavior.

Through this study, we aimed to examine aggressive behavior among adolescent students in the secondary education stage who use electronic games. This was done by addressing the following questions:

- What types of electronic games do adolescent students tend to use?

- Does the use of electronic games lead to the emergence of aggressive behavior among adolescent students?

- Are there differences in levels of aggressive behavior among adolescent students based on the type of electronic games they use?

To answer these questions, the following hypotheses were formulated:

- Adolescent students tend to engage in electronic games that involve violence, such as racing games, sports games, and war games.

- Engaging in electronic games leads to the emergence of aggressive behavior among adolescent students.

- There are statistically significant differences in levels of aggressive behavior among secondary education adolescent students based on the type of electronic games they engage in.

To verify the validity of the formulated hypotheses and answer the study's questions, a descriptive methodology was adopted, as it is the most suitable for such studies. A survey questionnaire was administered to adolescent students to collect data related to the study, and the Aggressive Behavior Scale was used. After statistically analyzing the collected data, all formulated hypotheses were confirmed. These results were interpreted based on previous study findings and an analysis of the characteristics of the study sample.

Keywords: Electronic games, aggressive behavior, adolescent students.

The Problem Statement:

Play is a natural inclination and an important activity that individuals engage in. It is considered one of the methods through which individuals reveal much about themselves and the surrounding environment, and even about the world in which they live. It plays a significant role in shaping one's personality from childhood, and contributes to the learning of various mental, motor, social, values, and moral skills, such as sportsmanship, patience, and sincerity.

Psychologists and educators like "Piaget" emphasize that play serves as an educational intermediary and a teaching tool that provides learners with an educational environment enabling them to engage in self-discovery and facilitating the construction of their cognitive development (Mahmoud Al-Hila, 2005).

The concept of play has been historically associated with physical activity and vitality. However, with the rapid advancements in technology in recent years, particularly in the fields of computers and the internet, its perception has evolved. Play has become more closely linked to these modern technologies, giving rise to a new generation of games known as electronic games. Since the inception of basic programming languages, enthusiasts in this field have been quick to develop these games, which soon captured attention, gained acceptance, and achieved success across various segments of society. This prompted programmers and manufacturing companies to invest significant effort in enhancing both hardware and software components. Electronic games have now become a means of entertainment, although they are rarely employed for educational purposes (Mohammed Al-Kamil, 2009, p.126).

As a result of the captivating and thrilling elements, as well as the modern visual and technological features found in these games, they have rapidly spread across Western, Arab, and specifically Algerian societies. They have garnered significant popularity among both young and old individuals. A report titled "Video Games in the 21st Century" stated that the American industry manufactures video games primarily for entertainment purposes. The revenue generated by this industry has grown substantially, with sales reaching $250 million in 2006 compared to $74.1 million in 1996 (Stephen, E; Siwek).

Amidst the significant interest in playing electronic games and the potential strong impacts they can have on the health, behavior, language, and overall personality of their players, numerous studies have emerged in this field, yielding two main directions: one direction emphasizes the positive effects of these games (such as the development of strategies for visual perception,

attention, and information processing), while another direction warns against the dangers and effects of these games on the behaviors of their users. In this context, a study by Dalal Abdulaziz Al-Hashash (2008) regarding the impact of playing certain electronic games on aggressive behavior among secondary school students in government schools in Kuwait found differences in the average scores of the experimental group and the control group in terms of aggressive behavior, attributed to the influence of playing certain electronic games.

This is corroborated by a study conducted by Maryam Gouidar (2011), which aimed to understand the impact of electronic games on children's behaviors. The study classified this type of games as one of the top recreational activities that children enjoy and are inclined to acquire. It also found that the majority of children engage in these games during holidays and occasions for more than "5 hours a day". Regarding the types of electronic games preferred by children according to the same study, they include sports, war, and combat games. Most children emulate their favorite heroes in these games, leading them to assume roles that are not their own. This phenomenon contributes to the emergence of aggressive behaviors.

As a result, these games have become the most influential means on the cognitive, social, and physical development of their users. Individuals are no longer passive spectators; instead, they actively participate and interact within these games. They take on the role of the main character, experiencing the thrill of victory or the disappointment of failure. They kill and torture virtually, and through this process, they experience various interactions as if they were real-life situations. This heightened interaction and engagement with the games can make the individual more susceptible to the influence of violence, turning it into a significant factor in their mindset and behavior. (Najlaa Nasira Beshour, 2004, p. 82)

Doctors and psychologists warn of the danger and effects of electronic games on their users, especially children and teenagers. They affect lung development as

individuals stay indoors for long hours, leading to tension in the heart, neck, palate, back, and eyes.

The impact of electronic games also appears in the behavior of excessive players, as their behavior becomes characterized by excessive nervousness and aggression. A study by Majed Mohammed Al-Zuboudi (2015) confirmed that teachers believe there are risks associated with these games, particularly their role in various types of school violence incidents. Parents also face real struggles due to their children staying up late playing these games, which affects their academic efforts. Additionally, these games consume the time and attention of their children, leading to several problems within the family, such as weakened family communication and the emergence of selfish tendencies among children.

Andersson and his colleagues conducted several studies on the impact of video games and found that they incite violence and have a stronger effect than violent movies. They emphasized that video games are interactive unlike cinema, and they discovered that adolescents in the United States spend an average of 13 hours per week playing these games. Increased engagement in these games leads to aggression in thinking, emotions, and behavior. Moreover, these games make users less attentive and empathetic towards others (Al-Ghamdi, 2004, p. 229).

One of the events that demonstrated the general impact of electronic games on behavior and specifically aggressive behavior took place on April 20, 1999. Two teenagers named Harris and Dylan entered a high school in the United States and initiated a shooting spree that resulted in the death of 13 people and left 23 injured before they turned the weapons on themselves. Upon investigating the precise reasons that led them to carry out this attack, it was found that one of the main factors was their engagement in aggressive electronic games. Harris had even created an electronic game containing characters, weapons, and scenarios similar to the events that occurred during the shooting (Maher Hassani Al-Shahrouri, 2002, p. 26).

In light of the above, two prominent directions can be identified regarding the impact of electronic games. The first direction argues that electronic games expose adolescents to numerous and serious risks, both physically and psychologically. The second direction contends that electronic games effectively have a positive impact on education and learning, as they aid in developing image reading strategies, increasing the utilization of attention strategies, enhancing speed in processing information, and improving problem-solving efficiency. This highlights the dialectical hypothesis posed by many researchers regarding the influence of these games on adolescent behavior.

This study aims to investigate aggressive behavior among adolescents in secondary education who engage in the use of electronic games. The following questions are posed as part of this attempt:

- What types of electronic games do educated adolescents tend to use?

- Does the usage of electronic games lead to the emergence of aggressive behavior among educated adolescents?

- Are there differences in levels of aggressive behavior among educated adolescents based on the type of electronic games they use?

The study's hypotheses:

- Educated adolescents tend to engage in electronic games that involve violence, such as racing, competitions, and war games.

- Practicing electronic games leads to the emergence of aggressive behavior among educated adolescents.

- There are statistically significant differences in levels of aggressive behavior among educated adolescents in secondary education based on the type of electronic games they engage with.

The importance of this study includes:

- Clarifying the level of aggressive behavior among educated adolescents who engage in electronic games during secondary education. The study addresses an important social group that is in a crucial stage of life, adolescence, which has a significant impact on their lifelong personality development.

- Guiding students and their families about the dangers of engaging in violent and aggressive electronic games by highlighting their negative effects on adolescent personalities.

- Providing scientific information about electronic games, especially given the Algerian society's need for awareness regarding the dangers of electronic games, particularly during the adolescent phase.

- Emphasizing the importance of focusing on the psychological well-being of educated adolescents by identifying factors that influence their behavior.

The objectives of the study are as follows:

- Identify the most popular electronic games played by educated adolescents during secondary education.

- Examine the current status of electronic games among educated adolescent populations in secondary education and determine the types of games they are inclined to use.

- Measure the level of aggressive behavior among educated adolescents in secondary education who engage in electronic games.

- Highlight the role of electronic games in the emergence of aggressive behavior among educated adolescents.

- Identify differences in the level of aggressive behavior among secondary education students who use electronic games based on the types of games.

Basic Concepts Definition:

1. Electronic Games:

In a general sense, playing is a directed free activity involving movements or a sequence of actions, carried out individually or collectively. It harnesses both mental and physical energy, characterized by agility and quickness in dealing with objects. It doesn't exhaust the participant and contributes to the individual's knowledge, becoming an integral part of their cognitive structure. Its primary purpose is enjoyment, although it can also serve a learning function. (Hanane El Anani, 2002, p. 87)

Electronic games, on the other hand, are a type of games displayed on television screens, providing individuals with enjoyment through challenges that require the coordination of hand-eye movements (visual-motor coordination) or mental capabilities. This is achieved through the development of electronic software. (Maha Hassani Al-Shahrouri, 2008, p. 46)

Procedurally: Refers to a set of activities related to information technology and the internet, practiced by adolescents in secondary education using mobile phones or computers. It can also involve dedicated gaming devices such as PlayStation, Xbox, Nintendo, and networked games.

2. **Aggressive Behavior**:

Linguistically: The term "aggression" is derived from the verb "ada" which means injustice. It is said "la 'udwan 'alay" meaning "no way against." (Al-Munjid, 1986, p. 42)

Conceptually: Aggression is the response that follows frustration, aiming to cause harm to another individual or even oneself. Aggression ranges from physical assault to verbal attacks, blame, belittlement, and mockery. It can be imagined or manifest as a feeling of anger. (Abdul Latif, 2001, p. 98)

Procedurally: It refers to physical, motor, verbal, and cognitive reactions and responses exhibited by the adolescent who engages in electronic games. This

behavior includes attacking others with the intention of causing harm, such as name-calling, insulting, physical fighting, provocation, and a desire to harm others or oneself. It is measured in this study using the level obtained by the adolescent according to the "Buss and Perry Aggression Scale," which is used in this study.

3. Adolescence:

Linguistically: The word "adolescence" is derived from the meaning of approaching and getting closer to the dream. Scholars of linguistic jurisprudence confirm that "rahiq" means to approach, reach, or get closer. In this context, adolescence refers to the individual getting closer to their dreams, perfection, and maturity. (Fuad Al-Sayed, 1998, p. 272)

Conceptually: Modern researchers define adolescence as the approach to sexual, emotional, and intellectual maturity. It is a transitional stage between childhood and adulthood, qualifying for adulthood and spanning from around 13 to 19 years, either before, during, or slightly after this period by a year or two. (Abdul-Mun'im Al-Miladi, 2003)

Procedurally: This study focuses on the secondary education stage (first, second, and third years) across all specialties, corresponding to the commonly recognized divisions of the adolescence period, particularly the middle adolescence phase, which spans from 16 to 17 years.

Field Study Procedures:

– Survey Study:

The survey study is the first step that the researcher takes to familiarize themselves with the research field. It provides an opportunity to verify the availability of the sample and the research tools used. "Shahata Salman" defines it as a set of research procedures aimed at identifying and presenting topics worthy of research in a specific field, in order to identify research problems. It serves as a preliminary step in the research process, representing the true beginning of

the journey. The final results of the research depend on the accuracy of this starting point. (Shahata Mohammed Salman, 2006, p. 278).

The survey study was conducted on a sample consisting of (50) male and female adolescents enrolled in secondary education, with the aim of:

- Contacting the research field, represented by educational institutions (secondary schools).

- Verifying the presence of the sample with all the required conditions and characteristics for the research.

- Detecting any challenges that may be encountered during its implementation and consequently attempting to control and overcome them during the application of the main study.

- Ensuring the psychometric characteristics of the data collection instruments.

The survey study resulted in the tools of the study exhibiting a suitable degree of validity and reliability, enabling their application on the study sample and trusting in their results. Additionally, we confirmed through it the availability of a study sample that meets the required conditions, which can be described in the following tables:

Table No. (**01**): Represents the distribution of sample individuals according to their use of electronic games:

Usage	Frequency	Percentage
Uses	44	88%
Does not use	06	12%
Total	50	100%

It is evident from Table No. (01) that the majority of secondary school students use electronic games, as the percentage of users was calculated to be (88%), while the percentage of students who do not use electronic games was (12%).

Table No (02): illustrates the distribution of the sample members according to the duration of electronic games usage:

Duration	Frequency	Percentage
1 hour	5	11.36%
2 hours	15	34.09%
3 hours or more	24	54.54%
Total	44	100%

It is evident from Table No. (02) that we only considered the teenagers who engage in electronic games, totaling (44) students out of (50) students. Therefore, we notice that those who use electronic games for a duration of 3 hours or more have the highest percentage, estimated at (54.54%). Those who use electronic games for 2 hours are (34.09%), while those who engage in gaming for 1 hour constitute (11.36%).

Table No (03): Represents the distribution of the sample according to the types of games they engage in:

types of the games	Frequency	Percentage
Puzzle Games	08	18.18%
Action Games	11	25%
Strategy Games	05	10%
War Games	15	30%
Simulation Games	05	10%

Total	44	100%

It can be observed from Table No. (03) that the highest percentage of engagement is in War Games, with a rate of 30%. Action Games follow with a percentage of 25%. Puzzle Games constitute 18.18% of the sample. Meanwhile, both Strategy Games and Simulation Games each represent 10% of the participants.

–The methodology of the study: The study methodology is based on the descriptive approach, which is commonly used in descriptive studies. This choice aligns with the study's variables and hypotheses, as it aims to examine the reality as it is. The approach involves collecting both quantitative and qualitative data that are relevant to this reality in order to describe and interpret it. Descriptive methodology is a technique among various analytical methods that relies on sufficient and accurate information about a specific phenomenon or subject within known time periods. The goal is to obtain practical results and then interpret them objectively, in accordance with the actual data of the phenomenon. (Sami Mohammad Malham, 2002, p. 252)

Sample of the Study and its Characteristics:

The selection of the sample is one of the important steps and stages of the research, where the researcher usually defines the research population based on the topic, phenomenon, or problem chosen. The study sample included (180) male and female adolescents who are attending secondary education in the "Boumerdes" and "Tizi Ouzou" regions. They were purposefully selected, taking into consideration the following criteria:

- Enrolled in secondary education.

- Engage in electronic gaming for more than one hour per day.

- Their ages range between (16) and (17) years.

Data Collection Tools: Data collection tools refer to the means used in the study to gather the required information. Two tools were utilized for this

purpose: a questionnaire on "Electronic Gaming" and the "Buss and Perry Aggression Scale." These tools were employed to collect facts and information from the participants in order to test the proposed hypotheses.

In light of the research hypotheses and variables, a questionnaire was designed, consisting of 20 items, to measure the extent of electronic gaming usage among the sample. The questionnaire was divided into three main axes: the first axis, "General Information," includes data on gender, school year, age, socioeconomic status of the family, and the educational institution. The second axis pertains to habits of electronic gaming practice and comprises 10 items. The third axis, with 10 items, assesses the effects of engaging in these games on adolescents in general.

The questionnaire was distributed to the sample participants after ensuring its validity and reliability. This was done by visiting classrooms, explaining the study's purpose and the content of the questionnaire, and reading the instructions to the participants. We took care to retrieve the questionnaires ourselves on the same day.

To measure the level of aggressive behavior in adolescents who engage in electronic gaming, the "Buss and Perry Aggression Scale" was adopted. This scale consists of 39 items, and its validity and reliability were confirmed on the study sample.

The statistical methods used:

To achieve the study's objectives, analyze the collected data, and summarize its results, some well-known statistical methods were employed. This was done by relying on the Statistical Package for the Social Sciences (SPSS) software, after coding and inputting the data. The following methods were used:

- Frequencies and percentages were used to test the first hypothesis ("Educated adolescents tend to engage in violent electronic gaming").

- The Kruskal-Wallis test was employed to validate the second hypothesis ("Electronic gaming leads to the emergence of aggressive behavior in educated adolescents") and the third hypothesis ("Differences exist in the level of aggressive behavior among users of electronic games based on the type of games").

Presentation, **Discussion**, **and Analysis of Results**:

1- Presentation and Analysis of Results:

Hypothesis 1: The educated adolescent tends to engage in electronic games that are based on violence, such as car racing, competitions, and war games.

Table (04): Represents the ranking of frequencies and percentages of electronic games usage based on types of games....

Types of Electronic Games	Frequency	Percentage
Car Racing Games	80	21.62%
War Games	80	21.62%
Training Games	75	20.27%
Strategy Games	60	16.21%
Intelligence Games	45	12.16%
Entertainment Games	30	08.10%
Total	370	100%

It is evident from the table that the most practiced electronic games by the sample individuals are car racing and action games, each with a percentage of 21.62. Following them are training games with a percentage of 20.27, while the

least practiced games are entertainment games with a percentage of 08.10. Therefore, it can be concluded that the first hypothesis has been fulfilled.

Hypothesis 2: The use of electronic games leads to the emergence of aggressive behavior in educated adolescents.

Table No. (**05**): Illustrates the results of the Chi-square (χ^2) test for significance of differences in the level of aggressive behavior among users of electronic games based on the duration they spend playing:

Duration	Average rank	Chic-square (X^2)	Degrees of Freedom	Critical Value	Level of significance	Level of significance
1 hour	48.60	10.056	2	0.007	0.05	Effect Size
2 hours	68.41					
3 hours or more	78.81					

It is evident from the above table that the value of (χ^2) is 10.056, which is statistically significant, and the adopted significance level is 0.007, which is lower than the significance level value of 0.05. Therefore, we reject the null hypothesis and accept the alternative hypothesis, which states that the use of electronic games leads to the emergence of aggressive behavior in secondary school adolescents.

Hypothesis 3: There are differences in the level of aggressive behavior among secondary school adolescents who use electronic games according to the type of these games.

Table Number (**06**): Illustrates the results of the Chi-Square (χ^2) test for the significance of differences among students in the level of aggressive behavior according to the type of games.

Game Type	Average rank	Chic-square(χ^2)	Degrees of freedom	Dependent Significance	Level of Significance	Level of significance
Car Racing	68.09	14.308	4	0.006	0.05	Effect size
War Games	49.22					
Training Games	74.22					
Strategy Games	81.63					
Intelligence Games	92.50					

It is evident from the above table that the calculated χ^2 value is 14.308, which is statistically significant, and the adopted significance value (0.006) is less than the significance level (0.05). Therefore, we reject the null hypothesis and accept the alternative hypothesis, which indicates that there are differences among students who use electronic games based on the type of these games in terms of aggressive behavior level.

Discussion of the results:

Discussing the results of the first hypothesis: The first hypothesis suggests that the educated teenager tends to engage in electronic games that are based on violence.

As indicated by Table (04), this hypothesis has been confirmed. The electronic games related to car racing and war were ranked at the top, with a percentage of 21.62 for each. This finding is consistent with the study conducted by Mariam Gouidar (2011), which revealed that the preferred types of games among most

children are sports, war-related, and combat games. This result can be interpreted as follows:

-This is a type of game that spreads in every household, enjoyed by both young and old, especially teenagers, due to the excitement, suspense, and interaction with the game's events. It has an appeal and charm that is similar to animated cartoons that children are drawn to. The interaction between the game and the teenager during play advances from one stage to another, increasing their attachment to the point of addiction. This serves as a dangerous indicator for the teenager's health, as addiction is not limited to drugs alone. Video game addiction can make users lose their sense of time and importance, causing them to distance themselves from their families and waste hours of sleep and meals. They become fiercely angry whenever someone tries to prevent them from continuing to play..

-The media, including war scenes shown on television and parental discussions about these topics, can make violence appear normal to teenagers, especially when parents buy and consider these games ordinary. These games assist in fulfilling the instinct for violence in a realistic manner without feeling guilt.

-Their ease of use, compared to educational games that require intellectual effort, can lead teenagers to feel bored.

-The invasion of these games into the markets, with their allure and excitement, plays a significant role.

Discussion of the second Hypothesis: The second hypothesis suggests that engaging in electronic games leads to the emergence of aggressive behavior in adolescent students.

From Table (05), it is evident that the value of (χ^2) is (10.056), which is statistically significant. The adopted significance value (0.007) is lower than the significance level (0.05), indicating that there are differences in the degree of aggressive behavior among users of electronic games based on the duration of play. Adolescents acquire and learn aggressive behavior through their

engagement with these games, attempting to imitate violent scenes or game characters. This is supported by "Bandura" in his social learning theory, which asserts that aggression is a learned behavior from the social environment. Aggressive behavior is often acquired through modeling, whether through observing real-life instances of aggression or symbolic representations of violence on television. Additionally, the extent to which individuals identify with these models and their inclination towards violence influences the process of imitation.

The results of this study are consistent with numerous studies conducted in this field, such as the study by Barbara Krahé (2003), which aimed to investigate the relationship between adolescents' video game play and the extent of increased aggression among them. The findings of this study revealed a clear connection between engaging in video games and aggression. Video games were found to enhance aggression among students, implying that these games amplify aggressive behavior and violence among students, particularly negatively affecting their behaviors. This suggests that games play a role in fostering violent behavior in children, and the content of these games plays a fundamental role in aligning children or adolescents with the presented aggression model.

Furthermore, students might adopt aggressive behavior as a means of self-defense and asserting themselves. They may employ it as a method to control and influence their surroundings. Inside the classroom, there are elements that view themselves as leaders or influencers, and others obey their orders out of fear. This is a result of mimicking what they see and learn through engaging with electronic games. This aligns with the findings of David Awache's study, which aimed to examine the impact of engaging in violent video games on the behavior of adolescent students. The results demonstrated that students who played video games for a longer period exhibited more aggression compared to those who played these games for a shorter duration.

Dr. Anderson and his colleagues, along with several studies they conducted regarding the impact of video games, also share a similar perspective. They found that the average time spent by adolescents in the United States playing this type of game is 13 hours per week. Moreover, increased engagement in this type of gaming leads to aggression in thinking, emotions, and behavior. These games also tend to make users less attentive and empathetic towards others.

Discussion of the third Hypothesis: The third hypothesis posits that there are statistically significant differences in the level of aggressive behavior among adolescent students in secondary education who use electronic games based on the type of games they play.

From Table (06), it is evident that the value of (χ^2) is (14.308), which is statistically significant. The adopted significance value (0.006) is lower than the significance level (0.05), indicating that there are differences in the level of aggressive behavior among users of electronic games based on the type of games they play. Adolescents who play violent games tend to have more aggressive thoughts than others. This is supported by the study conducted by "Palmane" (2003), which found that children who play violent games exhibit more aggression compared to those who only engage in passive viewing.

This can be explained by the fact that exposure to violence in electronic games leaves an imprint on the surface of the mind, residing in the realm between conscious and unconscious. This phenomenon is more pronounced among adolescents, who are more receptive to these influences from their surrounding environment. They may struggle to differentiate the significant gap between the violence portrayed in the game and the brutality of real life, often not perceiving the profound impact that desensitizes them. Consequently, they continue playing day and night without restraint. The continuous engagement can persist for days on end, driven by the diverse presentations within these games that accentuate aggression and violence in a captivating manner. This participation reinforces violent behavior as users immerse themselves in it, often facilitated by the presence of rewards for aggressive actions.

Conclusion:

Electronic games have become an integral part of individuals' lives, captivating both young and old alike due to their thrilling and exciting elements. These games have gained widespread popularity in both developed and developing societies. This phenomenon has led educators, psychologists, sociologists, and doctors to inquire about the potential effects of these games on individuals' personalities and behaviors.

This study aimed to identify the types of electronic games preferred by adolescent students and highlight the role of these games in the emergence of aggressive behavior. Furthermore, it aimed to underscore the differences in the level of aggressive behavior based on the type of games used.

After collecting and analyzing the data, the following conclusions were drawn:

- Adolescent students in secondary education tend to engage in electronic games that are based on violence, such as car and war games.

- The use of electronic games contributes to the emergence of aggressive behavior among adolescent students. The duration of usage correlates positively with the level of aggressive behavior.

- Statistically significant differences exist in the levels of aggressive behavior among educated adolescent students based on the type of games they play. Higher levels of violence in these games are associated with increased aggressive behavior.

Based on these conclusions, the following recommendations are suggested:

- Conduct further studies to explore the impact of these games on other aspects of children and adolescents' behavior (social, cognitive).

- Monitor adolescents while playing these games and assess their impact on behavior.

- Encourage limiting game usage when signs of addiction appear.

- Define the allowable number of hours for playing these games.

List of References:

In Arabic:

1. Hanan Al-Anani (2002). "Play in Children: Theoretical and Applied Foundations", Dar Al-Fikr, Amman, Jordan.

2. Dalal Abdulaziz Al-Hashash (2009). "The Impact of Playing Some Electronic Games on Aggressive Behavior Among Secondary School Students in Government Schools in Kuwait", Arab Open University for Graduate Studies, College of Graduate Studies, Psychological and Educational Counseling Department.

3. Sami Mohammed Malham (2002). "Research Methods in Education and Psychology", Dar Al-Maseera Printing and Publishing, Amman, Jordan.

4. Suleiman Shihata Suleiman (2006). "Educational Games: A Theoretical View and Applied Examples", Dar Al-Andalus, Hail.

5. Abdel Moneim Al-Miladi (2003). "Psychology of Adolescence", Shabab Al-Jami'a Foundation, Alexandria, Egypt.

6. Essam Abdel Latif (2001). "Social, Economic, and Academic Factors Influencing Tendencies Toward Aggressive Behavior Among Students of Hashemite University", Journal of Educational Sciences Studies, Issue 134.

7. Abdurrahman Salem Al-Ghamdi (2004). "The Effect of Video Games on Children's Drawings in Late Childhood", Unpublished Master's Thesis, Art Education Department, College of Education, Umm Al-Qura University, Mecca, Saudi Arabia.

8. Fuad El-Sayed El-Bahi (1998). "Psychological Foundations of Growth (From Childhood to Old Age)", Arab Thought House, Cairo.

9. Majid Mohammed Al-Zuboudi (2015). "Educational Implications of Children's Use of Electronic Games: As Perceived by Elementary School Teachers and Parents", Taibah University Journal for Educational Sciences, Volume 10, Issue 01.

10. Mahmoud Mahmoud Al-Haila (2005). "Educational Technology: Between Theory and Application", Dar Al-Maseera, Jordan.

11. Mariam Gouider (2012). "The Impact of Electronic Games on Children's Behaviors: A Descriptive-Analytical Study on a Sample of School-Age Children", Faculty of Communication Sciences, Algeria.

12. Al-Munjed (1986). "Dar Al-Mashriq", Beirut, Lebanon.

13. Maha Hassani Al-Shahrouri (2007). "The Impact of Electronic Games on Cognitive Processes and Emotional Intelligence Among Middle Childhood Children in Jordan", Unpublished Doctoral Dissertation, Arab Open University for Graduate Studies, College of Graduate Studies, Psychological Education Department, Amman, Jordan.

14. Maha Hassan Shahrouri (2008): "Electronic Games in the Era of Globalization", 1st Edition, Dar Al-Maseera, Amman, Jordan.

15. Najla Nasira Bishur (2004): "Electronic Games: Positives and Negatives", Educational Magazine, Issue 31.

Other Languages:

16. Stephen E. Siwek, "Video games in the 21st Century: Economic contributions of US Entertainment", USA, Software industry, Entertainment Software Association.

17. Barbara Krahé (2012). "Violent games and Aggression", The Oxford Handbook of Media Psychology, Edited by Karen Dill.

18. Anderson & al (2000). "Video games and Aggressive Thoughts, Feelings, and Behavior in the Laboratory and in Life", Journal of Personality and Social Psychology, Vol. 78, No. 4, 772–790.