

Electronic Games and the Child's Cognitive Mind: Theoretical Perspectives

الألعاب الإلكترونية والعقل المعرفي للطفل -إسقاطات نظرية-

فرحاتي فاطمة* Ferhati fatima

fatima.ferhati@univ-djelfa.dz

Sociology of Organization/ Ziane Achour University of Djelfa / Algeria

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Abstract:

Technological advancements have transformed children's and adolescents' leisure activities, especially through electronic games. This study examines their impact on cognitive development using major play theories: psychoanalytic, cognitive, behavioral, social, and physical growth perspectives. Results indicate that while such games may enhance concentration and problem-solving, they also risk psychological disturbances, social isolation, physical impairment, and conflicts with family values. Field observations revealed widespread digital addiction, affecting academic and social outcomes. Recommendations include promoting constructive play, strengthening family communication, implementing regulations, and enhancing school-based awareness programs.

Keywords: Electronic game; Cognitive development; Digital addiction; Play theories ; Psychological effects .

ملخص :

شهدت أنشطة الأطفال والمراهقين تغيرًا كبيرًا بسبب التقدم التكنولوجي، لا سيما عبر انتشار الألعاب الإلكترونية الحديثة مما استوجب دراسة اثارها على النمو المعرفي لد الطفل ولهذا تهدف هذه الورقة البحثية إلى دراسة أثر هذه الألعاب على التطور المعرفي، بالاعتماد على نظريات اللعب الكبرى: النفسية، المعرفية، السلوكية، الاجتماعية، ونظريات النمو الجسدي كما أظهرت النتائج أنَّ الألعاب الإلكترونية قد تعزز التركيز وحل المشكلات، لكنها تحمل مخاطر نفسية، عزلة اجتماعية، ضعف النمو الجسدي، وتناقضًا مع القيم الأسرية وقد كشفت الملاحظات الميدانية عن انتشار واسع للإدمان الرقمي، مؤثرًا على التحصيل الدراسي والسلوك الاجتماعي. توصي الدراسة بتوجيه الأطفال نحو بدائل لعب ببناءة، تعزيز التواصل الأسري، وضع تشريعات للحد من الألعاب الإلكترونية، وتفعيل البرامج التوعوية في المدارس. الكلمات المفتاحية: الألعاب الإلكترونية؛ التطور المعرفي؛ الإدمان الرقمي؛ نظريات اللعب؛ التأثيرات النفسية.

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* - Corresponding author: fqtdy@gmail.com.

***- Introduction**

The tremendous developments the world has witnessed, particularly in the field of technology, have become so significant that societies can no longer guarantee their continuity, prosperity, or even mere survival as organized and structured entities without mastering this technology. This technological advancement has saved considerable effort and time and achieved qualitative leaps in various domains. However, like all phenomena and social issues, it comes with disadvantages and negative aspects. In this regard, we can classify this technological acceleration and the extent to which societies adapt to it as a social phenomenon, since it meets several criteria: coercion, continuity, and widespread dissemination.

Among the negative aspects of this technological trajectory is its encroachment upon the realms of leisure, entertainment, and play—especially the remarkable development in electronic games targeted at children and adolescents. These age groups are particularly sensitive and crucial in shaping individuals' lives across social, psychological, and physical dimensions and pose significant risks.

Through our review of previous studies from different perspectives and our field observations imposed by our lived reality, we were prompted to ask the following central research question:

What is the impact of electronic games on the cognitive development of students' minds?

In this study, we attempted to answer this question by analyzing a set of play theories and projecting them onto the current topic: the modern pattern of gaming represented by the use and addiction to electronic games. To gain a deeper understanding of the subject, we structured our study around the following axes):

- Definition of Electronic Games
- The Importance of Play in Childhood and Its Objectives
- Analysis of Play through Major Theories

1- Definition of electronic games :

Electronic games are a new form of play that emerged in the twentieth century and are played using complex devices. Numerous studies have indicated that these games enhance children's thinking and problem-solving abilities and increase their concentration and attention span. However, on the flip side, they can also elevate children's stress levels and reduce their opportunities for social interaction and integration with others. These games vary in complexity according to developmental stages (Al-Qahtani, 2013) .

2. The Importance of Play for Children :

Numerous studies and research consider play to be a highly significant factor in the formation of a child's personality. It enables the child to harmonize and adapt to their environment. Play is an activity through which the child explores their world, develops their self-awareness, becomes

acquainted with those around them, and builds social relationships. It also supports the learning process through imitation and cognitive development acquired through the methods and manifestations of play.

Al-Hamali states that play has a substantial impact on a child's learning and on the development of their personality both cognitively and behaviorally, by improving their social communication with others (Al-Hamali, 2016, p. 74).

According to Norsworthy and Whitley, play is the most important of all educational factors. A child who does not play not only misses out on the joys of childhood but also fails to become a fully developed adult (Jallab, 2021, p. 51).

The benefits of play include the following (Al-Attar, 2019, p. 99):

- Active play is essential for developing a child's muscles, enhancing their exploration skills, and improving their abilities in assembling, dismantling, and constructing objects.

- Through play, the child learns how to establish healthy social relationships with others and how to interact successfully with peers, adults, and those in various roles.

- While playing, children learn certain values and concepts of right and wrong. They also acquire ethical standards such as honesty, trustworthiness, and self-control.

- The child expresses their creative and constructive energies through play. By role-playing, they experiment with the ideas they have in their minds. Drawing, for example, helps develop their creative abilities.

- Through play, children discover much about themselves, understand the limits of their abilities compared to their peers, and become aware of their problems and ways to solve them.

- Play prepares the child to adapt in the future through new responses developed during their playtime. Therefore, play is no longer seen as a waste of time but as a necessity for the child.

Childhood and adolescence are very critical stages. They are central and essential in shaping an individual's personality. Many studies suggest that people who later pursue specific careers often had early exposure to those fields, learned their basics, or practiced them during adolescence. This --- period fosters strong attachment and love for those fields, influencing their behavior and thinking from that early stage.

Game developers have understood how to access the minds of our children and adolescents by choosing attractive themes for them and incorporating them into electronic games. This strategy makes the child or adolescent emotionally attached to these games. For example, themes such as the love of victory, confrontation, battle engagement, or curiosity about the unknown appeal to psychological needs and provide the child or adolescent with a sense of achievement.

However, these illusory and temporary victories often lead to isolation and withdrawal, gradually pushing the child or adolescent towards addiction to electronic games. This addiction poses numerous risks to their mental and physical health, social relationships, and most critically, their academic and intellectual future due to the serious consequences involved.

3. Analyzing Play Through Major Theories

3.1 Psychoanalytic Theory:

The psychoanalytic theory, one of the most important theories in psychology led by Sigmund Freud, attempted to provide a psychological interpretation and psychodynamic perspective of children's play. This theory considers play to be a vital and essential psychological function in a child's life, serving to alleviate stress, reduce anxiety, and help children cope with their psychological struggles. Therefore, play is deemed crucial during childhood for the development of a psychologically well-balanced and integrated personality.

However, at the same time, Freud also warned about the experiences and accumulations associated with childhood play. He emphasized that such experiences are directly related to certain psychological disorders that may appear later in life. In his theory presented in psychotherapeutic treatment, Freud stated: "Disorders in individuals can be traced back to the influence of early experiences during the initial stages of life" (Muslih, 1990, p. 48).

Through a simple application, we can project this theory onto the reality of modern electronic games and their impact on the development of children's and adolescents' personalities. Based on Freud's findings regarding psychological disorders and their connection to earlier stages of childhood and adolescence—and the experiences or cognitive accumulations acquired during those stages, which may be incorrect or contradictory to the values parents wish to instill in their children—we can observe how electronic games can damage these critical developmental phases. These games often convey ideas that are alien to our society, religion, and culture, thereby placing the child or adolescent in psychological conflict and contradiction between what they absorb from their family and social environment and the foreign ideas introduced through games. This leads to ongoing internal disturbances that may persist into adolescence and adulthood, drawing the individual into complex psychological dilemmas.

Given the widespread and almost uncontrollable spread of electronic games, children and adolescents now spend more time engaging with them than with their families or in academic study. In fact, children either play games or spend time talking about the various games they've played, exchanging their names and details. Consequently, they deplete most

of their energy and focus on these games, leading to feelings of stress and various psychological disturbances that continue into advanced stages of adolescence.

These disturbances may evolve into deeper psychological conditions characterized by isolation, indifference toward those around them, and a general sense of emotional detachment. As a result, many of these children develop psychological illnesses such as depression and a lack of interest in life. This, in turn, leads to a lack of motivation toward learning and education.

3.2 Cognitive Theory:

Jean Piaget devoted considerable attention to the study of children's cognitive development. He emphasized that the child is the foundation of the learning process and an active participant in it—not merely a passive recipient of information. Piaget proposed a series of stages for cognitive development that evolve according to the child's age, with each stage possessing distinct characteristics that differentiate it from the others in terms of cognitive growth. In other words, the child is seen as an active agent in the construction of knowledge and in the accumulation of experiences.

Piaget went even further by asserting that play assists in the development of a child's cognitive abilities, and that it serves as a measure of cognitive and intellectual growth. He stated that play is "the organization of reality at the level of action or thought, not merely a replication of it." In order for a child to gradually adapt to both the natural and social environments around them, Piaget acknowledged the existence of two essential processes: assimilation and accommodation (Al-Qahtani, 2013). These two processes form the very basis of his theory on play.

The process of assimilation refers to the activity by which a child transforms received objects or information into internal structures that become part of the self. Accommodation, on the other hand, is the activity the child performs to adapt or align with the external world. Piaget attributed the process of cognitive growth in children to the continuous and dynamic interaction of these two processes. In Piaget's view, play is a form of special assimilation in which the child adjusts incoming information to suit their individual needs and preferences. Therefore, play and imitation are integral to the process of cognitive development (Al-Anani, 2002, p. 103).

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This theory addresses two fundamental processes in the cognitive development of children: assimilation and accommodation. Both processes play a critical role in the construction and healthy development of a child's cognitive mind. They are considered the ladder by which the child climbs gradually toward cognitive and intellectual maturity. Assimilation, in this sense, involves the transformation of all the knowledge and information received by the child into the building blocks of their personality and the formation of their identity.

This becomes especially serious when we consider the volume and nature of information that our children receive through electronic games, and how such information is internalized and turned into subconscious principles and default beliefs within the child's emerging identity. These games—often of unknown origin—may carry toxic content that could destabilize even adults, let alone psychologically fragile and innocent children, who are like blank pages handed over to this new “school” of electronic gaming.

As for accommodation, as described in Piaget's theory, it encompasses all the attempts made by the child to adapt to their external surroundings. These attempts or activities can be considered as imitative behaviors, mimicking what surrounds the child in order to learn and grow cognitively.

Thus, we must ask: What is the external environment our children are adapting to today? Hasn't it become, for the most part, centered on electronic games—from the gaming cafés they frequent, to the friends they socialize with whose conversations revolve around such games, to the social media platforms that mirror this content? We find children and adolescents conducting relentless online searches for videos about these games and their heroes, presented in short stories they enjoy listening to, and even engaging in discussions with peers from different regions and countries—with no knowledge of who these individuals truly are. These are virtual persons communicating and interacting with our children at a sensitive and critical age.

This is, in reality, the environment our children and adolescents are adapting to and imitating.

Therefore, both of the cognitive development processes—assimilation and accommodation—are now directed toward and revolving around this domain. We must imagine the extent of this cognitive development: Is it truly healthy, pure, and complete? Is it as we would hope? Or rather, should we ask what this cognitive development is carrying

with it other than emptiness and destructive ideas? When the cognitive mind—still soft and fertile during childhood—develops in a distorted and confused manner, it becomes extremely difficult to correct it later. As the child grows up, they form firm convictions and personal ideas that dominate and control their thinking.

3.3 Behavioral Theory:

The behavioral theory placed great emphasis on the surrounding environment in which the child engages in various activities, particularly play. It focuses on the role the environment plays in shaping play behavior. Behaviorists consider that play follows the same rules as learning, including:

Motivation:

According to behaviorists, fulfilling physical needs is the main and powerful driver behind play. The physical activity involved in play is a direct response to these biological urges.

Reinforcement:

Children's behavior during play tends to be repeated due to the reinforcement they receive. If the behavior is rewarded, the child is more likely to repeat it; if it is ignored or punished, it is likely to diminish.

This opens an important window: according to this theory, the child plays to satisfy biological and psychological needs essential to physical and cognitive development. Thus, if the natural pattern of play is disrupted or replaced with an unnatural alternative, the content of what the child acquires is likely to be flawed or contaminated.

Moreover, the theory emphasizes reinforcement, meaning that children are more inclined to repeat certain behaviors or activities when they are encouraged and rewarded. Conversely, if parents ignore or discourage certain activities, the child will likely abandon them.

This is very relevant when discussing electronic games. If parents want their child to stop engaging in harmful behaviors, they must actively withhold encouragement for those behaviors and offer alternatives. Encouragement or reinforcement of healthy, productive play is essential to shaping the child's habits.

3.4 The Social Theory of Play:

Social theories analyze topics from sociological perspectives, exploring relationships between social structures and individual behavior within a group. These theories also

account for socialization mechanisms such as schools, peer groups, families, and other institutions that influence and shape behavior.

Dr. Maria Montessori viewed play as a "great school" in which a child grows, and through which they develop physical, mental, and social abilities. It prepares them comprehensively for the responsibilities of life (Jallab, 2021, p. 51).

Dollard and Miller emphasized the importance of imitation in acquiring different behaviors. A child continues imitating until they learn the behavior or become capable of translating the model they are imitating. Imitative play can be useful in developing future social behavior by helping children internalize impressions, reduce anxiety, and reflect the values and beliefs of their group (Jallab, 2021, p. 104).

This shows that play evolves into a socialization school alongside the family (as the nucleus), the school, the community, the mosque, and peer groups. However, with the emergence of electronic games, traditional forms of play—physical, athletic, or intellectual—have largely disappeared. Children no longer find joy in physical play that benefits their bodies or in storytelling games that transmitted morals and values through smooth, enjoyable experiences.

Instead of games that foster traditional and religious values, we now have digital games with unknown origins, containing values that conflict with those of our conservative societies.

If play is indeed a "school of socialization," as supported by experts, we must ask:

What kind of school have we entrusted our children to today? What principles does it promote? What content are children exposed to daily through these games, and how does this shape their social behavior?

Is this transformation accidental—or is there a coordinated effort behind this aggressive incursion into the minds of our children and adolescents?

We must find solutions to save our children, rather than just lament the moral decline, personality imbalances, trust issues, rising violence, and the deteriorating educational levels that now plague not just cities but even our villages. We cannot simply surrender to this problem—we must confront it, reduce its impact, and find practical alternatives.

In our fieldwork and interviews with the owners of internet cafés, it became clear just how deep the problem runs. Many admitted that the situation is alarming. One café owner told us

that around 50 middle school students visit his café daily, most of whom are deeply addicted to games like PUBG and Free Fire. He said, "They're lost. These games have destroyed them. They don't want to talk to anyone. They've become uncontrollable even by their parents. They sneak in without permission, just to play." When I asked to speak to the children, he replied, "They won't listen to you. They won't respond. They're completely immersed in the games. Their minds are dominated."

3.5 Expectation Theory:

This theory, proposed by Karl Groos, approaches play from a different perspective compared to psychological and sociological theories. While the latter view play as having psychological or social functions, Groos considers play to have a deeply biological purpose. He believes it plays a crucial role in physical development and in training and preparing the child's muscles and body for future roles and responsibilities, whether as a man or a woman.

He states (Groos, 1901,p369):

"Play is a biological function of vital importance. It helps train the organs, allowing the child to fully control and use them freely in the future. Thus, play is a means of preparing the organism for productive and meaningful adult work."

For example, a three-year-old girl may unconsciously play the role of a mother, which prepares her for future responsibilities(Naji, 2019).

In this context, electronic games can be considered a modern form of play, as they contribute to the development of cognitive skills such as attention, problem-solving, strategic thinking, and quick decision-making, while providing a safe environment to experiment with ideas and learn new skills, just as traditional play prepares the child for future responsibilities. However, some electronic games can negatively affect the child's biological and cognitive development, especially when overused or if inappropriate games are chosen. Intensive gaming often reduces the physical activity necessary to strengthen muscles and coordinate the body, limits opportunities for direct social interaction that enhances social and emotional skills, and may cause mental strain or gaming addiction, preventing the child from engaging in a variety of balanced play experiences necessary for natural biological and cognitive development.

Thus, electronic games have great potential to develop a child's skills if chosen appropriately and their duration controlled, but they can become a negative factor if overused or unsuitable for the child's age (Naji, 2019).

3.6 Physical Growth Theory:

The Physical Growth Theory follows a similar approach, emphasizing that play contributes significantly to the development of the child's body, especially the brain and nervous system. It explains that a child who is not yet physically ready for work (due to the incomplete development of nerve fibers and lack of myelin coating) can stimulate these centers through movement and play.

As play activates various motor areas in the brain, this helps in the development of nerve fibers by stimulating the production of myelin—a fatty layer that supports efficient brain function

(Naji, 2019).

From this perspective, traditional play had a vital role in developing the child's body and preparing them for future activities. It functioned as a form of physical exercise that strengthened the child's muscles and body.

However, this important function has now disappeared in the age of electronic games. Children spend most of their playtime sitting in front of screens, eliminating the physical benefits once gained through running, movement, and outdoor competition.

Worse still, prolonged sitting and lack of movement at a sensitive stage in their growth has detrimental effects on posture, muscle development, and overall health.

Conclusion and Recommendations:

After all the information and analyses we have addressed, supported by scientific reasoning and evidence based on the theories that dealt with play, it has become evidently clear to us the great importance of play as a function with essential psychological, social, physical, and cognitive dimensions in a child's life—both in the present and the future.

Due to this great value, we must take a position that interacts with and aligns with the results reached by scientists and specialists through serious and in-depth studies regarding the benefits that can be derived from proper and constructive play. This type of play helps our children become mentally and cognitively healthier, and more socially engaged with their surroundings. Therefore, we must understand, adopt, and guide children toward such beneficial forms of play.

Moreover, we must avoid all forms and types of play that reduce our children to mere passive recipients of topics and ideas we know nothing about—ideas whose harm we cannot perceive, yet which threaten the child's health, identity, and very being.

And we are capable of doing so. According to the pioneers of behavioral theory, play has rules that are identical to the rules of learning, including motivation and reinforcement. In what has been said about the concept of reinforcement—which we previously explained—the activities and behaviors of children in general tend to be repeated due to the reinforcement they receive, such as encouragement and motivation. Conversely, these behaviors will diminish and children will lose interest in them if they are punished or sense rejection and disapproval from their parents. This can be achieved by downplaying the importance of such games, demonstrating their drawbacks to the children, expressing discontent and disapproval toward engaging with them, and providing alternatives and other competitive outlets. After all, nature abhors a vacuum, and the child is naturally active and dynamic and cannot remain idle or without activities.

Therefore, the best solution and strategy to attract children's attention and steer them away from this looming danger is to offer suitable alternatives and to dedicate enough time to understanding their concerns and aspirations, to embrace them and surround them with emotional and psychological care, and to give them the opportunity to express their dreams and goals. It is also essential to build bridges of trust between children and their parents. This is one crucial side of the issue.

On the other side, those in charge of all sectors must pay due attention to this issue, which threatens entire generations. They must enact laws, regulations, and guidelines to limit the spread of electronic games and reduce their harmful effects by all available means.

Moreover, schools, secondary schools, teachers, and the educational sector as a whole bear a heavy responsibility in this regard. This responsibility includes raising awareness, organizing appropriate activities, and bringing in specialists to discuss this issue in the presence of students and their parents. These workshops must be held periodically and continuously, as there will always be new generations of children entering this world—children who grow up and head in the same direction as those before them, without knowing anything about the matter or what kind of disaster it might hold for them.

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References:

1. Al-Anani, H. A. (2002). *Play in children* (1st ed.). Amman, Jordan: Dar Al-Fikr for Publishing and Distribution.
2. Al-Attar, M. M. (2019). The child and play... A psychological and educational perspective. *Arab Childhood Journal*, Issue 81.
3. Al-Hamali, A. A. (2016). Play and its impact on the learning process among preschool children. *Journal of the Faculties of Education, University of Tripoli*.
4. Al-Qahtani, S. M. A. (2013, May 22). Retrieved from <http://www.gulfkids.com/vb/showthread.php?t=10825->
5. Asaad, H. A. N. (2019). Theories that explained play. Retrieved from <https://physical.uobabylon.edu.iq/lecture.aspx?fid=14&lcid=85800>
6. Baayri, M., & Jallab, H. (2021). The importance of play in the child's life: its functions, theories, and educational roles. *Al-Rasid Journal for Social Science Studies*, 1.
7. Groos, K. (1901). *The play of man* (E. L. Baldwin, Trans.). D. Appleton and Company.
8. Muslih, A. A. (1990). *Education in Kindergarten*. Jordan: Dar Al-Fikr for Publishing and Distribution.