

THE RELATIONSHIP BETWEEN WATCHING ANIMATED CARTOON AND INFORMATION PROCESSING SPEED AND LEVEL FOR SAMPLE CHILDREN IN AGE GROUP [5-6] YEARS

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Abstract

Purpose of the study: This study aims to identify the nature and type of the relationship between watching televised animated cartoons and the information processing speed and Level for sample children in the age group [5-6] Years. The sample consisted of (225) boys and girls watching animation films at an average time of (6.8) and a standard deviation (1.9) in the age group of (5-6) years. The study adopted the descriptive approach and applied the tools to the study samples. The results were analyzed and compared. The study used a data collection form and a scale for measuring information processing speed and level.

Methodology: In light of the study hypotheses, the descriptive approach was used. The tools were applied to the study samples and their results were analyzed and compared.

Main Findings: The results of study gave rise to findings; the most important of which are that there are statistically significant differences between children with high watching and low watching in terms of the speed and the information processing level for those with high watching ... and there is a statistically significant effect of some of the factors of watching (televised animation – laptop animation - animated cartoons in both types) watching hours on weekends (less than four hours - more than four hours) on the speed and information processing level of the child.

Applications of this study: This study can be applied to children in general and can benefit teachers and parents.

Novelty/Originality of this study: The animated cartoons play a prominent role in developing the speed and information processing level, in light of the lack of excessive watching hours, particularly on public holidays, and the tendency to practice real activities in the environment. Also, there is a clear impact of animation films in light of watching hours on the speed and information processing level for children, as they provide them with a world full of scenes, beautiful nature, broad imagination and beloved symbols that make them guided by their content and seek to imitate them and process them in their understanding of reality, perception, and processing of the information they receive.

Keywords: Animation, Cartoon, Children, Impact, Information Processing Level, Information Processing Speed.

INTRODUCTION

The media comes at the forefront of the communication channels that provide the child with ideas and information and achieve his enjoyment and entertainment. If the child does not seek the media, it goes to him to provide the events propagated around him, as well as the discoveries and knowledge generated by the human brains.

The television is considered the most popular means of mass communication, as it provides the audience with a mixture of visual and auditory stimuli and a wide range of real and virtual life stories. It is the most important home appliance, that works as a means of access to the world ([Schmidt & Vandewater, 2008: 65](#)). Children use media indoors, during walk-in Street, restaurants, aircraft, trains, cars, gymnasiums, and schools, unless their use is expressly prohibited.

Since the 1950s, television has been placed under the control of the parents, legislators, child development experts, and means of communication about the potential effects of television on the behavior of viewers, particularly children. The effect of television on children's cognitive, social, emotional and behavioral responses has been documented in several studies ([Valkenburg & van der Voort m, 1995](#)). In addition to the impact of children's television viewing on violence and antisocial behavior, imaginative play ([Valkenburg & Van der Voort, 1994](#)) and creativity ([Singer 2019](#)).

The rapid growth of television has affected everyone while the impact on children is the most worrying. Television exposure to children begins within two years of watching animated cartoons (Bond & Calvert, 2014)

The media is integrated into children's daily environments due to children choose to use them in the so-called frontal exposure or due to others use the media and are inadvertently exposed to children, called passive back exposure. Most parents prefer to leave their children in front of the TV after finalizing their work or as a break. In addition, sitting the child in front of the television is the best way for parents to make their child eat their food ([Habib & Soliman 2015: 249](#))

Now, it is acceptable that the media has the power to influence individuals' interests and behavior. However, the influential force of the media lie is in children, which may be positive or negative. The negative aspects primarily focus on children's education and learning processes, particularly socialization, physical, cognitive and emotional growth. Eating habits and tendency to aggression and violence. More importantly, animated cartoon plays an effective role in improving children's learning skills, their visual awareness and their cognitive processing level of information, and teaching them personal

issues such as family relationships, friendships, communication and embracing the cultural and social elements provided in the content of the animation film.

Animated cartoon is the process of creating a series of frames containing an object or objects so that each frame appears as a change to the previous frame for showing the movement ([Baek& Layne, 1988: 132](#)). Animated cartoon is a series of different images that are dynamically presented in ways that help the child to perceive the constant change over time and the development of a more appropriate mental model for the task ([Gonzales, 1996](#)). Animated cartoon provides the child with information in an attractive story or dramatic stories that occur in places where the child is looking forward to visiting.

With developments in communication technology, still images have evolved into an animated cartoon, which is a way of gaining access to knowledge and thinking about them, and access to knowledge occurs (1) from technology (2) with technology (3) about technology, (4) through technology.

Presenting Animated cartoon to a computerized simulation of operations using animated motion pictures. Children's programs are based on animation that addresses the imagination, which children like. Educational institutions have therefore sought to invest in animated cartoon and make it an educational resource for achieving a number of educational goals. The animated cartoon is easily and quickly absorbed, making it attractive and exciting for children and thus potentially used in the process of education and training ([Adel Sultan, 2005: 129](#))

Animated cartoon, including all dynamic visuals such as video clips and cartoons, is more fun and attractive than still images and has greater flexibility in describing physical changes than still graphics ([Betrancourt& Tversky, 2000](#); [Castro-Alonso, Ayres, &Paas, 2015a](#), p. 552) are often assumed to be superior to still images ([Morrison, Zacks & Tversky, 2002](#))

The findings of more than one Arab study agree on the status of animated cartoons in the hearts of children. In an Arab study, it is established that (534) children represent (53.1%) of the sample individual finalize their homework before the animated cartoon began to be watched ([Saleh Hendi, 1998: 49](#)). In [Dr. Anshrah El Shal's study \(1987: 138\)](#), the number of its individuals counted by (404) children in the age group (5-15 years) where the animated cartoon was the first reason behind the admiration of the sample individual in children's programs presented in Egyptian television. The same study indicates that the video-recorded animations were almost the only material accepted by the sample individual, where it ranked first with a greater repetition than the repetition of the following material.

In view of the importance of animated cartoons for children and their interest in watching and following them, Arab and satellite television stations devote a considerable amount of time to children and their programs during their courses. For example, animated cartoon accounts for (66.7%) of all children's programs presented by the First Channel of Saudi Arabia TV during the week. This percentage rises to (85.8%) during the weekend and holiday days, and the percentage of the animated cartoon is (75.3%) of the total children's programs presented by Kuwait satellite channel. While Dubai TV accounts for (64.7%) of the total number of children's programs, while Oman TV accounts for (50%) of all children's programs ([Mohamed Moawad, 1994: 7](#))

([Irkin, 2012](#)) points out that animated cartoons with violence and sex content make children develop negative behaviors. ([Mayer, Hegarty, Mayer & Campbell, 2005](#)) reported that poor moving images that do not conform with a child's preferences affect his or her ability of information processing and may prevent him from learning through imagination while forming their mental models.

([Ningsih& Sari, 2012](#)) noted that the use of colloquial language and extraneous words may negatively affect children's linguistic development, and that excessive watching of the animated cartoon may hinder children's relationship with their social surroundings and cause them to lose critical thinking skills. In addition, they contain erroneous contents with respect to the teaching of religion and values.

Most recently, animation programs or films are specifically designed to develop the characteristics of children, to facilitate their learning and processing of information received, and to develop cognitive skills. Used to make students attracted to the learning content, process information, and develop critical thinking skills ([Micheal&Wyk, 2011](#))

([Türkmen, 2012](#)) noted that animated cartoon is a path that opens to a fantasy world of the real world. In this field children can freely imagine themselves and at the same time convey what they learn or see in this world they have entered into real life, it is possible to form children, and somehow their lifestyle in the world of animation.

([Doring, 2002](#)) supported the use of caricatures to motivate children to critical thinking and to process the information they received, stating that they prevent destructive behaviors of children, reduce boredom, increase interest and attention, hence to help in establishing a positive learning environment. However, Doring also stated that the use of other types of humor and cartoons in the classroom involved risk and warned teachers not to overuse them. He added that the use of animated cartoons is very useful in eliminating the contradiction between perceptions.

([Macgillivray, 2011](#)) noted that moving images can help children identify and analyze unrealistic behaviors, contemplate on events and relate them to their realities and surroundings. Using animated cartoon is the attractive way in learning the

content of physics and activates children's thinking, but on objective terms, i.e. not to over-watch, link watching to the reality of the child, his life and what he learns and chooses the appropriate animated cartoon and subject for the age group.

(Ince,1991) points out that children can be enabled to process and think about information by making education loved by them, and thus the desire to learn can be increased. It is developed from remembrance and memory and provides effective learning through colors and sounds.

LITERATURE REVIEW&THEORETICAL FRAMEWORK

Early childhood phase is one of the most important phases in the formulation and formation of psychological structure, on which the fundamentals of his development and overall growth is based on. The most important characteristic of childhood is the change in the physical, mental, social, emotional and linguistic development of the child and the maturity of each aspect where the child's capability to the various factors surrounding him is increased.

In the study of the psychologist Bloom about the mental abilities of the child, Bloom concluded that more than half of the child's mental abilities are integrated before the age of four where (20%) of mental and cognitive development occurs in the age of four. In this sense, he saw the need to enrich and improve the child's educational life and diversify his surroundings either in-home or in kindergartens. In addition, create opportunities for him to be provided with the experiences and practices that lead the child to self-activity and free play and exploratory learning. Child is characterized at this phase as being more conscious and aware of what is around him, his vocabulary and cognitive structure are developed that enable him at this phase of express his needs more clearly due to his acquired linguistic vocabulary while being in a level enable him to measure his abilities and determine their effectiveness through the degree of adult satisfaction, the response type and their evaluation thereof (Rafida Hariri, 2015).

Children are born with physical, social and psychological abilities that enable them to communicate, learn and develop. If such abilities do not receive evaluation and support, they will decay. Studies show that most intelligence growth, speed, and information processing level occur before the age of seven (Singer, 2018).

Social cognitive theory plays an important role in clarifying the role of the media in children's behavior. Children learn behaviors through learning by observation and translate some of these actions into their own behavioral repertoire if there are sufficient motivational incentives to do so (Bandura, 1997) For social cognitive theory involves sub-processes of drawing attention to information to be maintained through coding and representation processes, the production of this behavior, the motivation to do so which includes perceptions of rewards or punishments to act upon what one observed.

Children who sympathize with certain media characters become more inclined to imitate their actions. When the child is not penalized for unwanted behaviors or even rewarding, it is likely that children will mimic anti-social behaviors or models that lead to constructive social behaviors.

Animation

The animation was a part of the history of the cinema ever since its appearance in the late 19th century. The animation is a film that is displayed through cartoons instead of human actors, (Thompson 2010). The animation was very short at its beginning because people were watching it in cinemas before watching their long film. When cartoonists could present the cartoons, they were encouraged to provide animation for as long as half an hour, making the animation family-friendly and watched by more individuals (Kapelian, 2009)

The animation is a program based on drawings which are displayed and moved successively, to look like the movement of the truth, and each graphic expresses a particular character or a certain idea, but in fact they are shown in a normal in which the difference between the picture and the other followed by (1/24), Thus, they appear naturally moving according to the theory of survival of the vision.

The animation is a set of static images with a kinetic sequence occurring through independent graphics, and their display produces imagination of movement. It is also known as a group of images that pass at a certain speed to deceive the human eye .so the image has a movement based on visual deception, the image remains fixed on the eye by 1/20 second (Manal Abul-Hassan, 1998).

In this regard, children spend more time watching the animation and are influenced by their consistent, organized colors and its content (Gokcearslan, 2010; Yamamura 2014), that is what makes it been admired by children around the world, and it is broadcast around the clock. Children spend most of their free time watching animated programs that attract them not only because of their colorful images, their interesting content, and their vocal effects, but because it may instill in them positive and negative habits which play an important role in providing entertainment for children (Saengpassa, 2014)

Research evidence has shown that watching animations frequently brings about the disorder of children's executive performance, such as problem-solving, cognitive transformation, material regulation, working memory, self-organization, and decision-making ability (Lillard& Peterson, 2011; Hassan & Daniyal, 2013)

The literature review shows that many researchers have studied the impact of animated films on the development of children's gender, where children learn the roles of males and females identified by society in the form of cartoon

characters .they learn how to walk, talk and dress. These animated characters have features like humans and affect the behavior of children, so the children learn through imitation and develop some real-life actions by observing what they see in the drawings ([Cohen, Bryant & Voderer, 2014](#)).

The child looks like a white paper and he accepts any external influence affecting his personality in the future. Since any action the child sees may affect his personality, adults should be enthusiastic about what children see, especially watching animated television programs. Television is what attracts the children most and shapes or forms their behavior. Most children's programs usually appear in the form of cartoons or animated films. Children usually watch the animation on television at an early age of six months and at the age of two or three years ([Kapelian, 2009](#)) and may extend up to twelve years ([Habib & Soliman 2015: 250](#)).

In modern life, where parents are preoccupied with their work, less time is given to their children. This time is spent on watching animations that help them to keep children busy while they are at their offices or busy with home schedules ([Al-Farhathi Alsayed, 2009: 52](#)).

In the study conducted by ([Ghaida Ali: 2012](#)), which aims to identify the relationship of the film content to the extent of the speed of response of students in the field of artistic expression and she have reached the following results: It is necessary to take into account the characteristics of the stage of growth, requirements and needs to achieve better results. The profound awareness of the importance of the child's artistic personality and methods of its building contributes to increasing control sense, control of the personality of the child in the future and building an aesthetic taste of him. The use of cartoon films in research requirements has effectively contributed to stimulating motivation and desire for children, which has raised their artistic expression.

Also, the study of [Ahmad Badah and Mohammed Al-Enezi \(2013\)](#), which aims to identify the impact of watching the media programs in the development of linguistic intelligence of the gifted students from the point of view of parents. The results of the study have shown that the field of language placement ranked first, and the field of social linguistics in second place, Followed by the field of critical linguistic thinking, while creative thinking came in last.

In the light of the above, young children are an integral part of a generation of digital citizens ([Fleer, 2011](#)) who living in a world surrounded by everyday-life technologies ([Plowman & McPake, 2013](#)). Many countries acknowledge the increasing role of technology in children's lives and call for the development of information materials compatible with technology, a developmentally appropriate for children and help to bridge the digital experiences of children at home and at school ([Plowman, Stevenson, McPake, Stephen, & Adey, 2011](#)).

Given the nature of the kindergarten's age kid as a child in its early years which emphasizes the value of investment of this stage in training children to represent and process information, and use the appropriate methods in accordance with the characteristics of mental and cognitive development in order to improve their visual perception and the level of representation of information such as multimedia software and animation programs, storyboards ...

There were different views on the impact of animation on the formation and education- in the last period -and special theories about the impact of the media on the audience have been developed to show studies on the impact of animation on children, and four directions have emerged as follows:

1. **Direct impact:** these Studies addressed the impact of direct media on the child is receiving the media message addressed to him, and what in their contents of the positive and negative consequences on the thought and behavior of him, and interaction of the child without the need for mediation to clarify and communicate it.
2. **Functional impact:** these studies addressed the impact of media, especially animation on children, functionally. The child receives the message and employs it in his actions and these actions in different situations may appear characterized by this message, both positive and negative, as this effect is the result of interaction between animation programs and viewers. It is neither fair nor objective to look at animation programs as the only cause of impact because it is a process produced by other tangled environmental influences which can also contribute to influencing the child as family and school.
3. **Cognitive Social Impact:** Animation programs are a contributing factor to the social development of the individual, and interpreting factors of the process of acquiring new forms of behavior and experience at an early age, according to Pandora's views. Learning by observation and imitation is an important factor in this development phase.
4. **Emotional impact:** Focusing on the emotional aspect of the child and its effective effect in receiving the media message. He cares about the media messages that enjoy him. He remembers and recalls it in the situations he faces if emotional gratification and satisfaction had been achieved by it. Children forget the unpleasant cartoon programs for them which constitute not an attractive motivator Ibrahim and others, (2006).

On the basis of the theory of social learning, the use of animation programs is based on drawings of appropriate content chosen according to international standards and consistent with cultural tradition and is expected to positively influence the child's ability to think, to address the information received and to activate his visual sensory perceptions.

Global standards of animation:

The National Children's Education Standards (NAYC) as a global standard for children's understanding of media are summed up in the following points:

- Content addressed to the child whether good or bad or even ugly, the child needs a mental effort to understand it.
- Children differ in understanding what they see in the material presented through animation
- Children apply what they see in different ways
- Children need adult mediation in the process of understanding the meaning
- Children's thinking differs from adults because the children build ideas based on their level of development.
- It is not possible to implant an idea in the child's mind by explaining it to the adult mind, it may be by building the ideas in his mind and linking new information he had received with the information he known.
- Dialogue with the child must be based on giving and take principles.
- No couple of situations should be similar even if in the same context of teaching the child helping children, 2013).

The Importance of animation:

The animation is one of the key pillars of the media, and it plays a major role in the formation of the child, the formation of his personality and the formation of his directions." Early childhood is the crucial formative period in human life. The first seeds of a personality that crystallize and appear in the future of the child, the period in which the child forms a clear and sound idea of himself and an embodiment of his physical, psychological and social formation that helps him to live in society, and enables him to adapt properly with himself (Atef al-abd, d, p, p. 36) and, thus We recognize the importance of the early years of the child's life in the formation of his personality in all.

The animation is an essential resource for the development of the child's skills and the ability to interpret information, give the child the opportunity to enjoy his childhood and open his talents, and affect the child's conscience (Singer, 2017)

Laila Abdelhamid (2000: 151) points out that, in the opinion of some, children under 6 can not accurately distinguish between what is imaginary and what is realistic. He is vulnerable to learn the methods of aggression because of repeated scenes of violence. In the first years of life, He is incapable of distinguishing between the person and the situation in which he is so he tries to deepen his experiences with others and accepts the experiences of others in general.

Advantages of Animation:

1. Development of the imagination of the child, moving it to a different new world, making him climb the mountains and climb the space and enter the bush and walk in the forests, and fly in the sky.
2. Provide the child with cultural information that aids in the educational process, such as films that display geographical environments or medical information.
3. Provide the child with a clear language that he cannot find in his family environment, which will facilitate his correcting the pronunciation, the tongue and improving the language.

Disadvantages of Animation:

1. Making a child a recipient, not a participant, who would prefer to watch the work rather than participating in it.
2. Obstructing natural cognitive development because natural knowledge requires that the child moves using his senses, all or most of them, and watching the animation leads to the child's only using the sense of hearing and sight.
3. Reducing the degree of interaction between family members, because of the intensity of indulging in animation programs, so that they stop even talking together.
4. Presentation of religious and intellectual concepts contrary to Islam.
5. Among the most animated themes is the themes of violence and crime, and with time and repetition, children gradually get used to it and then enjoy it and imitate it.

The researcher emphasizes the importance of attention to its negatives and avoidance of it as much as possible and finds an alternative that fits with our Islamic values, as animation films are one of the tools to build awareness of the child and the most important tributaries of development for them.

Animation characteristics:

The animation is characterized by its ability to attract children through the imagination and the aesthetics of technology that makes it distinctive, including:

1. In my personal observation, animated films are attractive, bright and accurate in color distribution, making them attractive to the viewer.
2. Animation films are easily intelligible by young and old.
3. Animation films are characterized by short texts, which make them attractive and easy for young people.
4. Animation films are characterized by their ability to address the imagination that tends to the child loves and merges with it.
5. The sound in animation films plays an important role in conveying a particular message, the importance of sound lies in the perception of movement. In the compatibility and synchronization between image and sound, the recipient has more than one sense to confirm his feelings and the drama shown before him, when we express a movement with a voice, it becomes more effective than the movement without sound. The animation uses sounds and music which is considered an essential element in animation.
6. Movement: Animation depends on the art of movement which is based on the theory of remaining of the vision on the retina for 1/10 of the second after the disappearance of the actual image.

Information processing level theory:

Information processing theory is concerned with the quantity and quality of information that can be acquired, and focuses on answering questions such as how do you choose individuals? How do they extract or extract? And how do they reproduce? How do they use information in the environment? And What are the cognitive controls related to the content and processing of information governing the processes of selection, derivation, retention, production, and use, within capacity-duration systems for information processing ([Saqr, 2000: 55](#))

The information processing theory deals with the brain as a system with limited capacity for information processing where external inputs are transferred to the output system, outputs are getting out in an active response, and information processing processes are encrypted when those inputs are encrypted as they travel through the processing system ([Eysenck, 2000: 423](#))

And with the increasing influence of the cognitive trend, Cognitive psychologists have not denied that learning is a change in observable or observable behavior, but they believe that this change results from a change in an individual's cognitive knowledge or knowledge in terms of how much knowledge or information is organized. Cognitive scientists are particularly interested in cognitive processes used in learning through the theory of information processing ([Fathi al-Zayat, 1995: 315](#))

Information processing levels

This trend ignores the trend patterns of separate stores in terms of structure formation of memory, and the presence of separate stores where processing happens inside.

This trend - according to the Creek and Lockart model of processing levels ([Houston, 1986: 256-258](#); [Shaver & Trapy, 1993: 341-342](#); [Matlin, 1994: 75-85](#)) the processing vary from surface to surface to an average level of processing as follows:

1. **The Shallowest Level:** In which information is processed at the sensory level or by its formal characteristics only.
2. **Somewhat Deeper Level:** in which information is processed according to its image and this information has been identified and categorized.
3. **The Deepest Level:** In which information is processed according to its meaning, it is processed on the basis of the semantic processing (meaningful meaning).

STUDY PROCEDURES

Study Problem

Since the kindergarten represents the preparatory journey before the child joins a school, which is the phase of pre-preparation for the child's future school life, we find that the planning process of this phase must be based on preparing the child for the next phases. At this phase, he needs an appropriate educational context that raises his representation of information received and using visual sensory perceptions.

The emergence of animated cartoon has raised several questions, most notably the magnitude and quality of its impact on children as a media, due to its dependence on moving images associated with the sound through the monitoring and analysis of the impact on the child's thinking and representation or processing of information received and his level of visual perception.

Today, children are interested in animation and have become a necessity for most children, without such an animated cartoon, parents find it difficult to control their children. Currently, Children have a great opportunity to watch animation at an early age of six months, and when they reach the age of three, they become fans of many cartoon characters.

Children who watch animated cartoons may become more vulnerable to the risks of increasing social and behavioral problems, although they are the most common and easily accessible source of entertainment. At the same time, parents are also comfortable as they can provide their children with their favorite channels, making children addicted to animation (Sharmin, 2014). Research evidence has shown that watching animated cartoon frequently can disrupt knowledge functions such as information processing and memory problems (Lillard & Peterson, 2011)

Thanks to the globalization of sound and image, the child's media has become remarkably growing and has become closer to the child. This rapid circulation is accompanied with new and more sophisticated methods of Inducement of the child, controlling his mind and pushing him into the addiction of that wondrous magical fund as our fathers and ancestors called it (Singer & El Sharkawy, 2018)

The studies indicate that the media cast positively or negatively a shadow over the child, so that it becomes difficult for him to escape the impact is surrounded by and besieged from various aspects, and in different languages, day and night ... it tries to draw a new path for his life and a contemporary style of his activity and relations. Thus, it is able to effectively contribute to his education and guidance and to take his hand to the broad horizons of life (Singer, 2019)

In the light of the above facts, the current study seeks to determine the nature and quality of the relationship between watching television animation and Information Processing Speed and Level for Sample Children in the Age Group [5-6] Years.

Importance of the Study

- The findings of this study may benefit the media and educational workers regarding the way to identify the form of impact that these animation films reflect on children.
- The importance of identifying the total positive and negative effects that reach the child through watching cartoons or moving images.
- The importance of the need for trusted research information on the impact of televised, digital or electronic media content on children as the present study copes with what (Villani, 2001) points out that the cost of ignoring the impact of television and digital media on children will be economically and humanly expensive for children in the future.
- The current study copes with Egypt's current plan, which mainly focuses on films, DVDs and games.
- The importance of the study lies in the direct practical aspects of its results that are represented in the emphasis on the investment of the children's tendency to watch the animated cartoon.

The terminology of the Study:

1. Animation

A set of still images with kinetic sequences through independent drawings and their presence results in animation drawings (Abdel-AlimZaki, 1986: 303)

2. Speed of Information Processing

This refers to the time taken since the onset of the stimulus until the child's response whether it is true or false.

3. Information processing level

The information processing level is the space that can be used from a network of meaning connections inside the memory to process and prepare information.

Study hypotheses:

1. There are statistically significant differences between children of high watching and others of low watching at the speed and information processing level.
2. There is a statistically significant effect on the speed and information processing level of the child's animation (televised - laptop).
3. There is a statistically significant effect of watch hours on weekends (less than four hours - more than four hours) on the speed and information processing level in a child.

METHODOLOGY

The study sample

In light of the objectives and variables of the study, the sample was selected from public and private kindergartens in Cairo. An initial questionnaire was applied to the children of selected kindergartens in order to sort out the children who watched cartoons in their homes and to determine the number of daily hours in which they watched cartoons. The researcher concluded that there were 225 children and girls watching animated films with a mean age of 6.8 and a standard

deviation of 1.9) In the age group (6-7) years, and most children belong to the level of social and economic average and all study in kindergartens in Arabic, and the children have parents (father-mother) whose the method of study based on a survey parents see what the child sees And that all children are Egyptians, and not They are preceded by traveling abroad and staying abroad for long periods.

Study Approach

In light of the study hypotheses, the descriptive approach was used. The tools were applied to the study samples and their results were analyzed and compared.

Study Tools

1. Data collection form

It is used to collect descriptive data about children from their mothers related to the factors of watching the animation at home and the number of watch hours and means of viewing

2. Measuring the level and speed of information processing

The researcher used eight mental tasks, and this scale was prepared after reviewing the standards in the previous studies ([Waleed Al-Qafas, 2007](#); [Nabil Fadl, 2009](#)). The scale consists of eight mental tasks (30) seconds for each task and is defined in each picture. This time is calculated from the average performance of the children in their familiarity with the images during the exploratory study of tasks. These tasks were done from the image content. ([Haber & Mayers study, 1982](#)) states that individuals remember images better than words, as images are exposed to Dual Coding is more than words because it contains more information than words.

The first task is a training task for children to familiarize themselves with the tasks and learn how to perform them, and also so that the way in which the tasks display does not affect the response time of the child. Thus, the number counted is only seven tasks per child in terms of performance time and information processing level.

Then ask them to deal with pictures of things in the painting in two stages:

First: Categorize those things in groups.

Second: Discover the possible relationships between those images and things or objects expressed.

In each task, the following is measured:

1. The time taken by a child to answer the eight tasks and subtract from them four minutes is the amount of task display time.
2. A number of classifications reached by the child.
3. The number of relationships the child mentioned between objects in each plate.

How to calculate the score on the scale of mental tasks:

- **Speed of performance:** calculated by the time it takes the child to complete the tasks.
- **Levels of processing:** It is calculated from the number of responses made by the child between the images of objects presented to him. If he classified these images, only the level of his processing of information could be the marginal level, and if he moved to the relations between things and produced two relations between them, the level could be the middle level, three or more relationships are calculated from the deep level. In light of the average number of responses obtained from the scale experiment. The levels of processing have been judged after presenting the tasks to some jury members in the field of cognitive psychology.

Psychometric Conditions off Tools:

First: Truthfulness: The validity of the tools was verified in two ways:

1. **The jury members' truthfulness:** The presentation of the tools on the number of (6) professors of educational psychology and information in light of the objectives of each tool and the purpose for which it was developed, and in light of the procedural concept of the speed and level of processing information in the current study, Each. With reference to the need to be choices in each task four pictures familiar to the child.
2. **Scale experiment:** Tasks designed for 26 children were applied to identify the clarity of images for children and their ease of knowing, calculate the average time of good image recognition, the number of possible relationships between images, calculate the average number of relationships derived from images, Researcher in the final application of tasks. Some images have been edited, arranged and formatted on the slide, and the average recognition time is calculated at about 35 seconds.
3. **The validity of the peripheral comparison:** Two groups of children were identified by the first group of 25 children.

They had a quick response to questions and inquiries and were very responsive to the teacher. The second group, 42 children, marked as answering a correct answer but after a longer period of time than the first group.

The tasks were applied to each of the two groups, and the differences between them were calculated by means of the "T" test for the differences between the independent averages. The value of $T = 4.75$ was a function value at level 0.01 indicating that the current standard distinguishes between the two groups and the comparison is valid.

Second: Stability: The stability of the tasks provided to the children was verified by re-applying them to the previous sample used in verifying the peripheral comparison (55) children after three weeks, and calculating the correlation coefficient between the first application and the second application (0.74) Which is a correlation coefficient D at 0.001 which indicates that the performance of the tasks used in the current study is stable.

DISCUSSION / ANALYSIS

The results of the first hypothesis:

The first hypothesis states: There are statistically significant differences among children with high and low watching levels in terms of the spec and level of information processing.

To verify the first hypothesis, the differences between the children with the daily low watching for less than (3) hours and those with high daily watching for more than (4) hours were used via a test of differences between the independent averages, and this resulted in the following table data:

Table 1: The average and standard deviations, "t" value and the level of significance of the differences between the two groups (high and low) watching of the animation in the speed of information processing

Variables Information processing speed	Low watching		High watching		T value	Implication
	A	D	A	D		
	40.2	4.3	48.9	6.4		

Table (1) shows the differences between male and female children in the speed of information processing. The value of $T = 9.8$, which is a function value at (0.001) for children who watch the animation, is more than (4) hours per day.

In order to study the differences between the two groups of children (high-observed, low-view) in the processing levels, the frequencies were calculated for each group in the three levels (marginal - medium - deep) and the use of "ka" 2 for the differences between the frequencies which resulted from the following table.

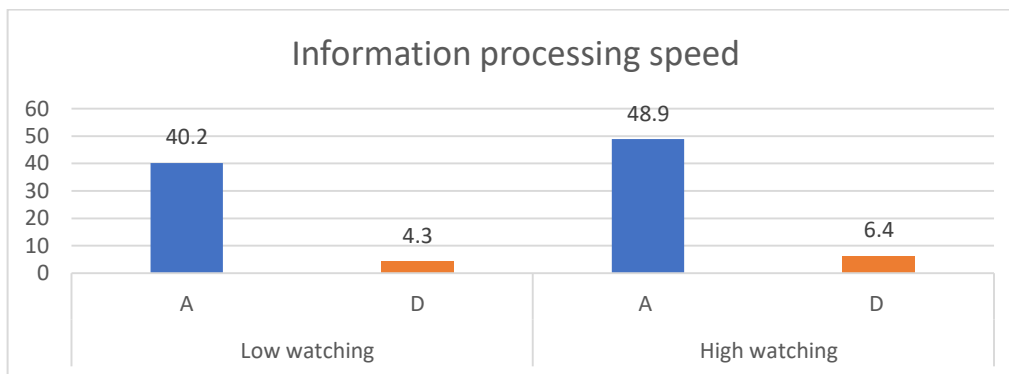
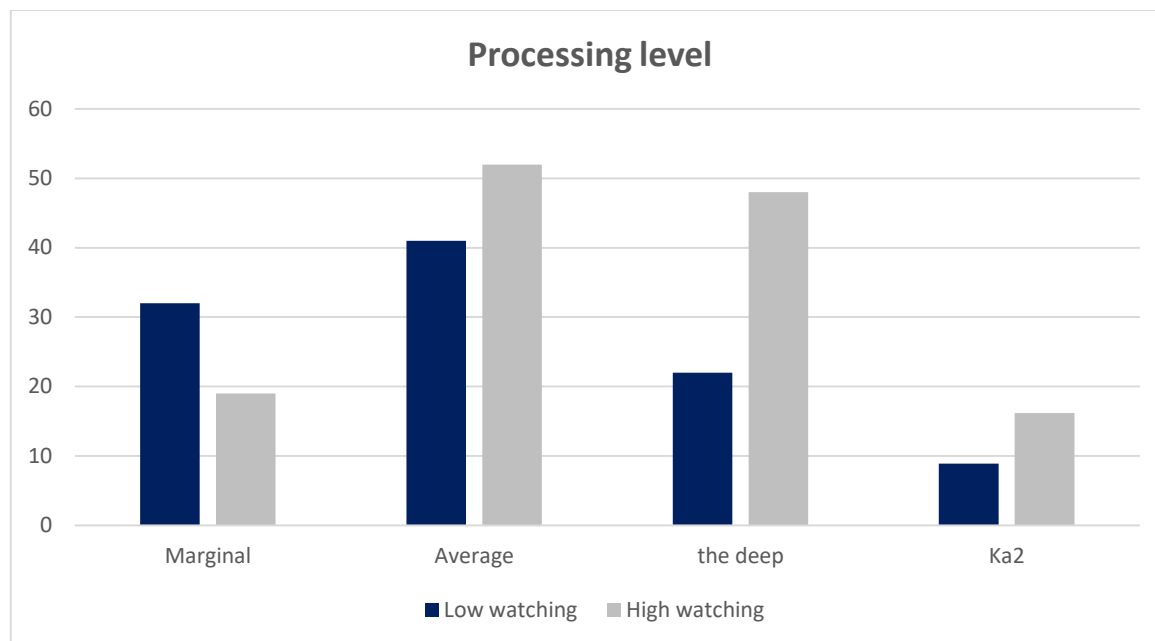


Table 2: Duplication and K2 and their significance for differences between the two groups (high - low) animation in information processing levels

Processing level	Low watching	High watching	Ka2	Implication
Marginal	32	19	18.4	0.001
Average	41	52	204	Non-D
the deep	22	48	7.49	0.001
Ka2	8.9	16.2		
Implication	Dale	0.001		

This can be explained in the light of the nature of animation that plays an active role in attracting the child; to provide the element of sound, image, movement, and narrative style, as one of the most media that can be invested at an early age The importance of animation is due to the use of more than one sense of receiving it, which increases its effectiveness and the comprehension of the information it contains (Mohammad Moawad, 1994).



Thus, animation, including elements of color, movement, sound and image, contribute to providing children with the knowledge and skills of many, and works to raise awareness of children and educate them and expand their intellectual horizons by dealing with animation programs of the social, religious, economic, health and other aspects of the training of children to receive information With understanding and good processing.

The result of this hypothesis is supported by (Levin, Anglin & Carney, 1987) that the animation has five functions:

1. The decoration function: Contribute to enjoy what displays and make it more attractive.
2. The representation function Helps to perceive or visualize a particular event, person or situation.
3. The transformation function: It helps to remember the basic information related to the field of animation.
4. The organization function: It can help organize information in a coherent structure.
5. The interpretation function: Drawings can help explain the animation of a particular learning area or entertainment area.

The results of the second hypothesis:

The second hypothesis Provides on: There is a statistically significant effect of some of the viewing factors (TV-watching, mobile - both) and weekend viewing hours (less than four hours - more than four hours) on the speed and information processing level in a child.

And to verify the second hypothesis, the study sample was divided into three groups.

- Group 1: Children who watch televised animation only (n = 125 boy and girl).
- Group 2: Children who watch the animation on a laptop only (n = 88 children).
- Group 3: Children who watching animated TV on the laptop (n = 112).

Using the one-way contrast analysis between the three groups to watch animation (TV - laptop - both) in the speed of information processing, the analysis resulted in the following tables:

Table 3: Analysis of the difference between the three groups in the speed of information processing

Variables	Source of Contrast	Total squares	Degree of freedom	Square's Average	"p" Value	Implication
Information processing speed	Between groups	3088.9	2	1044.45	330.5	0.001
	Inside groups	1022.3	323	3.16		
	Total	3774.2	325			

Table (3) shows the following:

- There was a difference between the three groups of female children in the speed of information processing where the value of (P = 330.4), which is a value at the level (0.0001)

In order to verify which groups the variation in the processing speed of the information is due to the multiple comparisons between the averages of groups using the method of "Shifa" The table below shows the results of this comparison.

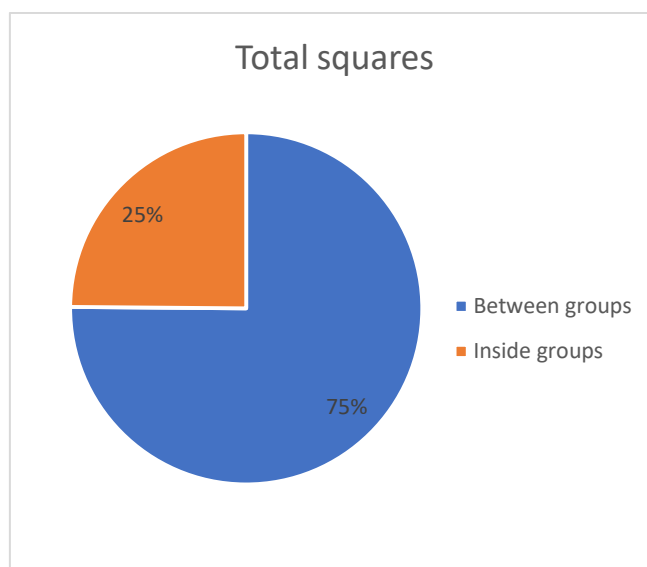


Table 4: Multiple comparison of averages in the speed of information processing

Variables	Groups	Averages	Group 1	Group 2	Group 3
Speed of processing information	Group 1	44.9		*	*
	Group2	50.8			*
	Group3	55.9			

Table (4) shows the following:

There are differences between the children of the third group (the children who watch animated films and the computer together) and the other groups (the group of children who watch animated films and the group watching movies animation computer) for the third group in the speed of information processing, Where it took the third group, which watch movies animated television and computer time in a faster processing and light that can arrange groups of children in terms of speed of processing in light of the average speed of performance as follows: The least rapid are children who watch cartoons on television and on computer and the second group is followed by a group of children who watch only the computer and then watch cartoons on television. This shows that children are not overly exposed to animated films

To calculate the differences between the three animation watch sets (TV - laptop - both) in the information processing levels, the frequencies were calculated for each group in the three levels (marginal - medium - deep) and the use of ka 2 for the differences between the duplicates and resulted in the following table.

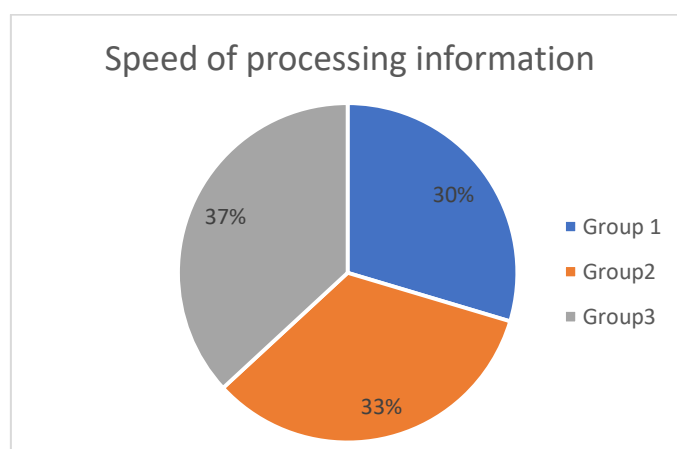


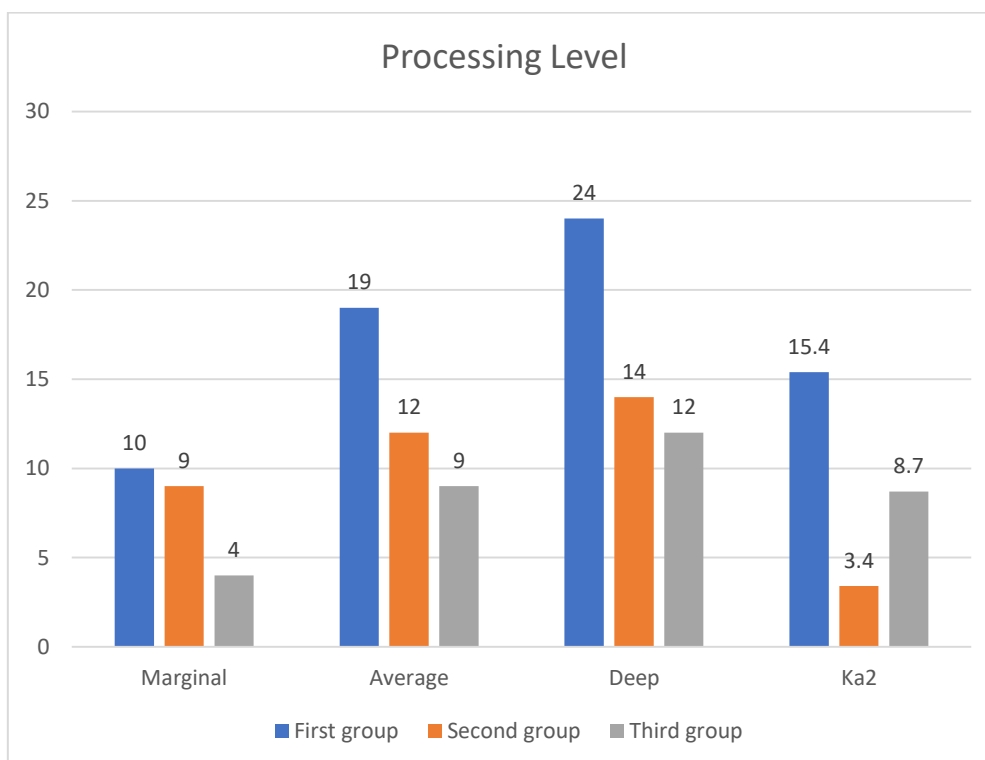
Table 5: Duplicates and K2 and their significance for differences between groups of children according to the method of watching movies (TV - Laptop - both) in the information processing levels

Processing level	First group	Second group	Third group	Ka 2	Implication
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Marginal	10	9	4	0.69	Non-D
Average	19	12	9	12.3	0.001
Deep	24	14	12	11.4	0.001
Ka2	15.4	3.4	8.7		
Implication	0.01	0.001	0.001		

The result of the previous table shows that: the children of the group who watching TV films are televised and low-performing for the marginal processing level compared to the remaining two groups.

- The group that watches animated films is based on deep processing levels of information compared to the remaining two groups
- The group of children who watch animated movies on a laptop is less in the processing of information than the group watching movies on television.



The result of this hypothesis can be explained in the light of the nature of animation, which may hamper the child's ability to process information, ([Ayres & Paas, 2007](#); [Castro-Alonso, Ayres, & Paas, 2015a](#); [Castro-Alonso, Ayres, Wong, & Paas, 2018](#); [van Gog, Paas, Marcus, Ayres, & Sweller, 2009](#)). And watching a lot of cartoons and from Different sources, works on contents information in memory, which makes the information disappear before the learner has sufficient time to address or link to new information ([Sweller, Ayres, & Kalyuga, 2011, p: 220](#)).

And then when using animation must limited to one way characterized by quality like animation on television ([Ayres & Paas, 2007](#); [van Gog et al., 2009](#)) and Studies suggest that animations can be useful in learning tasks that involve deep processing, use the child's audiovisual senses and affect the information-processing level, and that the child who watches the animation on the television has a better visual processing level than the child seen through Laptop ([Höffler & Leutner, 2007](#)).

And this is because of the innate ability to learn from the cartoon characters on television. Humans are born with a nervous system of neurons, which is a nervous mechanism that helps humans to imitate effectively through observation, especially when the medium is viewed with high quality and speaks for a wide range of visual appearance of the child and that happens in Animation on television. ([Rizzolatti & Sinigaglia, 2010](#); [Rizzolatti, 2005](#))

Results of the third hypothesis:

The text of the hypothesis "There is a statistically significant effect of watch hours on the weekend (less than four hours - more than four hours) on the speed and information processing level in the child".

And To verify this hypothesis, the study sample was divided into two groups:

- First Group: Children who spend hours on weekends (less than four hours) (n = 200 children)
- Second Group: Children who spend hours on weekends (more than four hours) (n = 125 children)

Table 6: Test among low and high watching hours over the weekend in the speed of information processing

Variables	Children with Low watching		Children with High watching		Value	Level
Information processing speed	Average	standard deviation	Average	standard deviation	T	Implication
	52.9	4.7	44.8	5.3		

Table (6) shows the following: There was a difference between the low and high watching groups in the speed of information processing where the value of (P = 4.7) is a function value at level 0.01 and to calculate the differences between the two groups in the information processing levels the frequencies were calculated for each group in the three levels (marginal - medium - deep) Using Ka 2 for differences between the frequencies and This resulted in the following table.

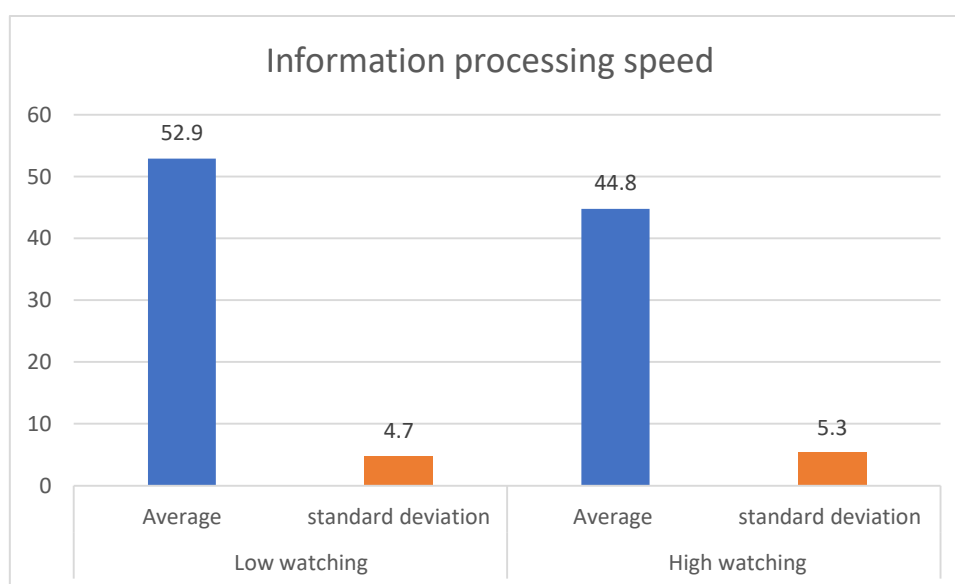


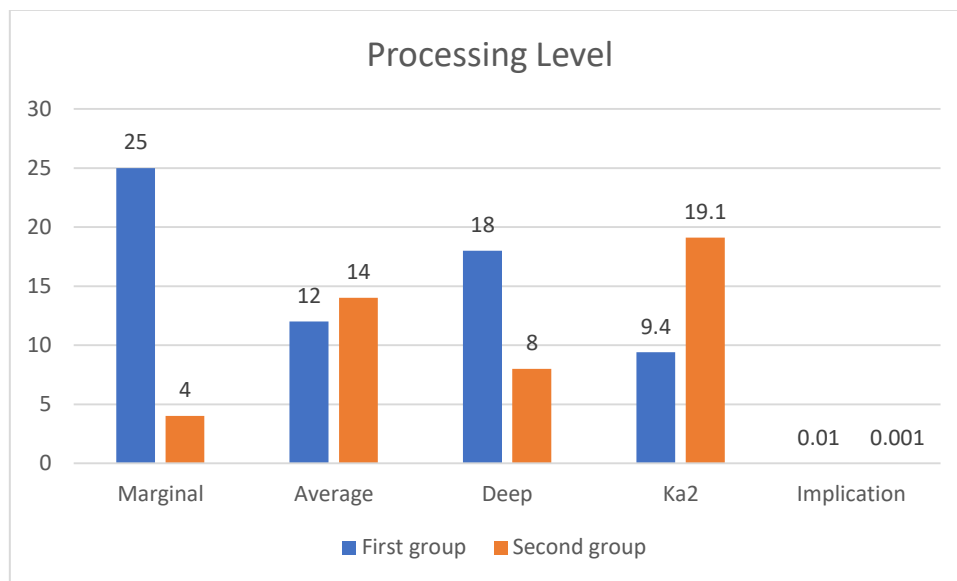
Table 7: Duplicates and K2 and their significance for the differences between the two groups of weekend viewing in information processing levels

Processing level	First group	Second group	Ka 2	Implication
Marginal	25	4	33.2	0.001
Average	12	14	1.4	Non-D
Deep	18	8	6.7	0.005
Ka2	9.4	19.1		
Implication	0.01	0.001		

The result shows that animations are more fun and attractive than images or drawings, and they are therefore often used for educational purposes. Animation has greater flexibility in photographing physical changes than fixed images (Betrancourt & Tversky, 2000; Castro-Alonso, Ayres, & Paas, 2014a, p. 552).

There is supportive evidence showing that animation is more effective than still images in educating children and improving their information processing level (Rebetez, B etrancourt, Sangin, & Dillenbourg, 2010).

Fees animated nature works to stimulate attention in children, and contribute to increasing the thrill they have, and that because of its sound, image, movement and color elements, so that the animation contributes to the formation of children's characters, and cultivate some life skills, animation provides information in the form of attractive or stories Tales that make them train on mental work or information processing, In addition, the shorter the animation, the greater the impact on children's behavior. This is in line with what (Fatima Al-Naimi, 2003) points out that every ten thousand children have five cases of children performing the cartoon characters they see. This result is consistent with the study conducted by (Manal Abul-Hassan, 1998) which states that animation programs are involved in developing the cognitive aspects of children.



CONCLUSION

- Information processing skills can be supported by any type of digital or paper application and technological applications that stimulate the mind and maintain the cognitive processing capabilities of information received by the child from the environment. According to the search results, animated films in light of certain conditions have an impact on the speed and information processing level.
- From this point of view, the recommendations to parents, teachers, and researchers are as follows:
- Guidance can be provided on the effects of animated films that children have the opportunity to see on television and in cinemas to parents and pre-school teachers. To enrich the speed and information processing level.
- High-quality animation films can be provided in a way that helps in the development of information processing capabilities. Pre-school parents and teachers can be informed of the lack of speed and level of processing or processing of information, and their awareness can be increased to identify and resolve deficiencies in the speed and level of processing or processing of information in their children.
- The results of the study showed that the animation plays a prominent role in the development of the speed and information processing level in the case of intermediate level of viewing hours, especially on public holidays and the tendency to practice the real activities in the environment.
- There is a clear impact of animation films in the light of watch hours on the speed and information processing level in children as it offers them a world full of beautiful scenes, pretty nature, broad imagination, and symbols beloved that makes them follow its contents and seek to represent and address it in their understanding of reality perception of its nature and processing of the information received to them.
- The animated films contained many ideas and meanings that reinforced different stereotypes, whether for people, roles, ideas, customs, traditions, relationships and ways of life that contributed to their processing of the information they received. Thus, they represent a ready source of emulation and simulation which is instilled in those who are exposed to it.

RECOMMENDATIONS:

1. Taking into account the seriousness of the information programs provided to children, especially cartoon films and the drawings that affect the formation of the information processing level in memory.
2. Provide cartoon programs with an identity that is compatible with the local culture and the Egyptian environment and provide them with a quality of the world and include drawings that mimic nature.
3. The need to find a recreational alternative that contributes to reduce the proportion of children watching cartoons.
4. The necessity of integration of all institutions of society in the formation of man in his early childhood in the various aspects of social, mental, mental, mental and aesthetic.

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