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Creative Thinking and its Relationship to Achievement Motivation among High School Students

(A Field Study in the Schools of Al-Qadarif Municipality, Al-Qadarif State - Sudan 2023)

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Abstract:

The aim of this study is the recognition of the stages of creative cognition, achievement motivation of the third-class secondary students in Gadarif Municipality, the recognition of the relationship between the creative cognition and achievement motivation. About three hundred students in third class at secondary level are included in the study and they are selected in a simple random way. To achieve the aims of the study, the researcher used a questionnaire of creative cognition prepared by the researcher and the measuring of achievement motivation prepared by (Mohyd Mohammed). The researcher used the connected descriptive method. After the statistical processing with the programme of statistical package for social science (SPSS), the following results are reached. First, the level of creative cognition of the secondary students in Gadarif Municipality is high. Secondly, the level of achievement motivation of the students is also high. Fourth, there is positive connected relation with statistical imply between the creative cognition and the achievement motivation of the students studied. Also, there are no differences with statistical imply that due to the following factors: gender, type of education, father's education and mother's education.

Keywords: Creative thinking; achievement; motivation; students.

Introduction:

Thinking and creativity are two important factors in reducing the cultural and scientific gaps between peoples, and they are also two important factors in the progress of nations in all areas of life. Creative thinking has a major and important role in refining talents and abilities, creating an effective educational environment and school activities, and raising the level of motivation. It was necessary to identify the relationship between creative thinking and achievement motivation. Scientific developments and discoveries in all fields and sectors have become known as the information revolution, the technological revolution and the era of inventions, and the interest in developed countries is no longer in the quantity and quality of production, but rather the interest in producing new ideas that can be transformed into a product that achieves wealth and prosperity, instead of relying on natural resources and traditional eroding energy. This is what prompted countries and institutions to pay more attention to the study of creativity and creative thinking and to care for the creators of their children and surround them with care. Society's care for its outstanding children has become one of the essential signs of the progress of societies (Al-Sherbiny, 2002, p. 5).

Al-Sorour (2010) stated that the individual's humanity and distinction are achieved by improving his thinking and his ability to think that is beneficial to him, his society and all of humanity. The past is a problem of practical research in a large number of countries. Therefore, the second half of the twentieth century was characterized by creativity and innovators, unlike the first half which witnessed interest in intelligence and its various measures and which led to exciting discoveries related to identifying creative people and developing creative thinking (Al-Sorour, 2010, 57).

Creative thinking has enjoyed an important position in many countries of the world, and this is evidenced by the large number of research and studies that take it as a subject, and the interests of researchers and workers in the educational fields that sought the need to train students to use different types of creative thinking. because reliance on the indoctrination of knowledge has become valid, it is unacceptable as a basis for the learning and teaching process, and the evidence is also on this position of creative thinking as it has great impact on the progress and development of societies and its advancement with technological and knowledge developments, and modern

inventions are among the results of creators and their ability to think (Jarwan, 2008, 27).

Al-Ghamdi (2000 AD) mentions that achievement motivation is one of the important aspects in the system of human motives, and it has emerged in recent years as one of the distinctive features of study and research in the field of social psychology and educational psychology, as well as in the field of academic achievement because of its great importance in understanding many problems. Education, in general, and the achievement motive received great attention compared to other social motives (Al-Ghamdi, 31, 2000).

Study Problem:

Through the work of the researcher in the field of education in secondary schools, he noticed that there is a difference and disparity in the level of creative thinking among secondary school students, and there is a discrepancy in their achievement motivation, which reduces students' self-confidence. This may be reflected in their performance and academic achievement. The matter prompted the researcher to investigate this problem in order to find out the level of creative thinking and achievement motivation and the relationship between them among third-grade students in the secondary stage in the municipality of Gedaref.

The problem of the study is represented in the following main questions:

1. What is the level of creative thinking among third-grade secondary school students in Gedaref Municipality?
2. What is the level of achievement motivation among third grade students in the secondary stage in the municipality of Gedaref?

The following questions arise from them:

1. Is there a statistically significant correlation between creative thinking and achievement motivation among third-grade students in the secondary stage in the municipality of Gedaref?
2. Are there statistically significant differences in the level of creative thinking among third-grade students in the secondary stage in the municipality of Gedaref due to the gender variable (male - female)?

Importance of Study:

1. This study enables officials at the Ministry of Education and Guidance, principals, and teachers to develop plans and programs that contribute to the development of creative thinking and stimulate achievement motivation among students.

2. Enriching and improving the knowledge aspect in the field of educational psychology.
3. Availability of tools to measure the level of creative thinking and achievement motivation for all stages of study, especially the secondary stage.

Objectives of the Study:

1. Identifying the level of creative thinking among third-grade students in the secondary stage in the municipality of Gedaref.
2. Identifying the level of achievement motivation among third grade students in the secondary stage in the municipality of Gedaref.
3. Knowing the relationship between creative thinking and achievement motivation among third-grade secondary school students in Gedaref Municipality.

Study assignments:

1. The level of creative thinking among third-grade secondary school students in the municipality of Gedaref is high.
2. The level of achievement motivation among third-grade secondary school students in the municipality of Gedaref is high.
3. There is a statistically significant correlation between creative thinking and achievement motivation among third-grade students in the secondary stage in the municipality of Gedaref.
4. There are no statistically significant differences in the level of creative thinking among third-grade secondary school students in Gedaref municipality due to the gender variable (male - female).

Terminology of Study:

1. Creative thinking: Terminological definition: it is thought that results in solutions or ideas that depart from the known cognitive framework, whether with regard to the information of the individual who thinks, or the prevailing parameters in the environment (Ali, 2011AD, 206).

Procedural definition: creative thinking is defined as the degree obtained by the respondents on the scale of creative thinking used in the study.

2. Achievement motivation: Farouk Musa explained: the motivation for achievement is the desire to perform well and achieve success (Moses, 1981, p. 5).

Defining achievement motivation procedurally: achievement motivation is defined as the degree obtained by the sample members on the achievement motivation scale used in the study.

3. The secondary education stage: it is one of the general education stages and the second stage after

the basic education stage. It includes three academic years.

4. Third-grade Students' Idiomatically: They are the people who successfully completed the second grade and were transferred to the third grade (scientific and literary).

5. Procedurally: They are male or female students who are studying in the third grade in secondary schools, representing the study population, and they will be subject to a questionnaire for creative thinking and two measures of achievement motivation.

Creative Thinking:

The subject of creative thinking is a thorny and interesting subject as it is thorny in terms of the multiplicity of its concepts with the multiplicity of researchers as well as the multiplicity of its stages, elements and theories. It is also an interesting topic because of its importance in our daily and contemporary life as the era of technology needs creativity. In the current era, our life has turned into digital in all its meanings, which caused an imbalance between the technology of the age and the thinking of people. Thinking must go hand in hand with the era of tremendous progress in technology, which requires a comprehensive change in education and thinking.

Education seeks to organize the thinking of students and to take advantage of their creative energies and invest them by providing programs and services that develop their capabilities and meet their needs and help them grow properly. Being real for his society and a factor of the factors of its renaissance, progress and prosperity (Al-Surour, 2010, p. 37).

In this topic, we will address the definition of both the concept of thinking and creative thinking, in addition to other elements that help to identify creative thinking.

Thinking:

1. Definition of thinking language:

There are several definitions mentioned by linguists about the definition of thinking, including:

What is mentioned in Lisan al-Arab: the thought of opening the f and the thought of breaking it, "the actions of the mind in the thing."

In Al-Mu'jam Al-Waseet, "The actions of the mind are in a problem in order to reach its solution."

And in Misbah Al-Munir, "Arranging things in order to reach what is needed is science or art (Al-Shuwaish, 2012, p. 17)."

2. Definition of thinking idiomatically:

There are many definitions of thinking in different intellectual and philosophical orientations, for scientists and researchers, and in different schools to which they belong, and among these definitions:

- Definition of Najani (1999) "thinking is a process through which the individual organizes his previous information in new ways so that he learns from those new things that he has not learned before (Al-Tayyib, 2006, p. 22)."
- As for Majdi Aziz, he defined thinking as: "a conscious mental activity that seeks to solve a problem, complex, or ambiguous situation, and it is also the land of operations that the human mind performs to comprehend life and the relationship between things" (Ibrahim, 2004, p. 74).
- As defined by Costa (1985): it is a mental processing of sensory inputs with the aim of forming ideas, in order to perceive sensory stimuli and pass judgment on them (Adnan et al., 2012, p. 231).
- It was also defined as "a process or activity that takes place in the human mind, and thinking occurs for various purposes including: understanding, understanding, decision-making, planning, solving problems, judging things, feeling joy, enjoying, imagining and indulging in daydreaming."
- Jarwan also defined it as: "It is a series of mental activities that the brain performs when it is exposed to a stimulus that is received through one or more of the senses (Muhammad and Sufyan, 2001, p. 39).
- It is a mental process through which an individual can do something meaningful through the experience he is going through.
- And also: it is "reorganizing what you know of new patterns and new relationships that were not known before" (Ali, p. 196).
- It is a "mental activity through which information is acquired and helps to form an idea, solve a problem, or make an appropriate decision" (Al-Astal and Al-Khalidi, 2005, p. 134).

Types of Thinking:

The thinking process is a complex process, so its types are numerous and their number differs

from one reference to another. Any researcher who deals with the types of thinking will find himself facing different and multiple types. So we mention the most common and general ones, which are:

- Scientific thinking: it means "that type of organized thinking that the individual can use in his daily life or in the activity he exerts or in the world around him" (Al-Ayasra, 2010, p. 23).
- Critical thinking: "it is based on the investigation of accuracy in observing and discussing facts that relate to topics, presenting them and criticizing within the framework of correct relationships and drawing conclusions in a logical and sound manner, taking into account scientific objectivity" (Al-Ayasra, 2010, pg. 93).
- Basic thinking: it includes a group of simple, uncomplicated cognitive processes which include pivotal thinking skills which are basic skills that must be mastered before moving to the level of complex thinking. These skills include: focus skill, information gathering skill, memory skill, organizing skill, and analysis skill. generation skill, integration skill, and evaluation skill.
- Complex thinking: it includes a set of complex cognitive processes that include the skills of critical thinking, creative thinking (innovative), meta-cognitive thinking, problem-solving, and decision-making (Ali, 2010, p. 87).
- Creative thinking: this thinking is considered one of the finest types of thinking, and we will talk about it later.
- Stereotypical thinking: it is that thinking that a person follows based on ready-made ideas that are due to customs, traditions, and cultural or religious legacies (Abdul Mukhtar, Adawi, 2011, p. 5).
- Philosophical thinking: It is the type of thinking proposed by the philosopher or thinker, and it is the most specific or complex type of thinking because it focuses in many of its aspects on metaphysical issues.
- Reflective thinking: it is that way of thinking related to self-awareness and knowledge or self-reflection and depends on contemplation, self-monitoring, and looking deeply at things (Abdul Mukhtar and Adawi, 2011, p. 5).

Creative Thinking:

If we look at the term creative thinking, we notice that it consists of two words, namely thinking and creativity. We talked about thinking

previously. As for the word creativity in language, it is an innovation that created the thing and the earth, i.e. (its creator), the innovator and the creator (active noun and object noun) (Al-Razi, 1967, p. 43).

Creativity for philosophers: is to find something out of nothingness (Al-Zubairi, 1965, 308).

It is clear from the foregoing that the meaning of creative thinking, a language, is unfamiliar and uncommon thinking that is characterized by novelty and modernity, thinking that did not come on a previous example and is unusual.

As for the definition of creative thinking idiomatically: there are many definitions that dealt with this term, and they can be stated as follows:

- De Bono sees in his definition of creative thinking that it is a carefully studied process to unify modern ideas (De Bono, 1989, p. 74).
- As for Medinck, creative thinking is defined as: a process that has several elements that are summoned in a new template that achieves a specific need or benefit (Qatami, 1990, p. 31).

What is the Definition of Creative Thinking?

- It is a complex and purposeful mental activity that directs it to a strong desire to search for solutions or to reach original outcomes that were not previously known (Shawahin et al., 2009, p. 47).
- He defined creative thinking as: a comprehensive cognitive mental process of value, and includes overlapping cognitive, emotional and ethical factors that constitute an active state of mind (Qatami, 2012, p. 37).
- We conclude from the previous definitions of creative thinking the following: it is a multi-faceted phenomenon and that it is a process or a purposeful mental or intellectual activity directed by its strong desire to reach an original product that contains moral and emotional factors or elements that achieve benefit.
- It is a method of directed thinking through which the individual seeks to discover new relationships, or to reach new solutions to his problems. (Al-Issawy, 1998, p. 65).
- This definition indicates that thinking leads to learning knowledge (new information), that is, thinking is the individual's tool for learning new knowledge, and reaching new solutions to problems.

Some Features of Creative Thinking:

Creative thinking has characteristics that must be present in it so that we can describe this thinking as creative, and these characteristics are:

- Fluency: it means the ability to generate a number of alternatives, synonyms, ideas, problems, or uses in response to a specific stimulus, and the speed and ease of generating them within a specific period of time.

The Types of Fluency are:

- Verbal fluency or word fluency: it is the ability to quickly produce the largest possible number of words that meet certain conditions (Jarwan, 1999, p. 96).
- Intellectual fluency: It is the ability to mention the largest possible number of ideas in a specific period of time.
- Expressive fluency: It is the ability to formulate ideas in useful phrases and the ability to quickly think of sequential words that are appropriate to the situation on a specific topic (Al-Surour, 2002, p. 118).
- Relational fluency: It is the ability to quickly produce words that share the same meaning or any other characteristic such as producing the largest possible number of synonyms and antonyms (Al-Suwaidean, and Al-Adlouni, 2002, p. 58).
- Formal fluency: it is the ability to quickly produce a number of examples, clarifications and formations based on formal or descriptive stimuli given such as: being given lines in a specific shape and asking him to add some additions to form drawings of many real shapes (Al-Suwaidean, and Al-Adloun, 2002, p. 58).
- Flexibility: it means the ability to generate a variety of ideas that are not usually expected and to direct or divert the path of ideas with the change of the stimulus or the requirements of the situation. Flexibility is the opposite of mental rigidity which is concerned with predetermined mental patterns that are not subject to change as needed (Jarwan, 1999, p. 98).

Some Forms of Flexibility Are:

- Automatic or spontaneous flexibility: It is the ability to produce the largest possible number of different ideas easily without guidance.
- Adaptive flexibility: It is the ability to change thinking and mental angle to face new situations and changing problems (Jarwan, 1999, p. 98).

- **Originality:** It is the ability to come up with new, rare and useful ideas that are not linked to repetition of previous ideas. It is an unusual and far-reaching production, and it is the most characteristic associated with creativity and creative thinking. Fala Hall means novelty and uniqueness (Jarwan, 1999, pg. 95).
- **Sensitivity to problems:** It means awareness of the existence of problems, needs, or elements created in the environment and situations. That is, the creator is faster than others in noticing the problem and verifying its existence in the situation as he is characterized by a sensitive sense (Jarwan, 1999, p. 99).
- **Elaboration or Expansion:** It means the ability to add new and varied details to an idea or a solution to a problem that would help in its development, enrichment, and implementation. The creator can link a number of ideas and think about them at the same time as he can keep in his mind a number of variables. Conditions and relationships when thinking about a problem (Al-Surour, 2002, p. 129).

Achievement Motivation:

The topic of motivation in general and achievement motivation in particular has found interest by researchers in the field of humanities and social sciences due to the importance of motivation in goals and its role in the process of stimulating and arousing behavior, directing it and continuing to achieve goals, and its role in the process of teaching and learning or hindering it if it does not provoke it. The Individual finds himself through what he accomplishes and the goals he achieves. Through this topic, we will address the definition of motivation and some related concepts, classification and functions, then we will discuss achievement motivation in terms of its definition, components, types of achievement motivation and the theories that explain it.

The Concept of motivation:

Motivation in language is a word derived from the triple verb which means to push something from one place to another place in a specific direction (Younis, 2007, p. 14).

Definition of Motivation:

The individual is exposed to a set of internal and external stimuli that arise in this behavior so that these stimuli are considered a motivation and has several definitions including:

Motivation is defined as: an energy within a living organism, whether human or animal, that pushes it to perform a specific behavior or activity, whether it is motor, intellectual, imaginative, emotional, or physiological, to achieve a specific goal that is to satisfy this motive (Taha, Sunna, p. 191).

Motivation is also known as: the energy latent in a living organism that pushes it to perform a certain behavior in the outside world, and it is the energy that draws the living organism to its goals and objectives to achieve the best possible adaptation in its external environment (Abu Jweij and Abu Mughli, 2004, p. 138).

It is defined as: the state of the organism that can be inferred from the sequences of behavior directed towards specific goals, the achievement of which leads to the termination of the sequence, and this state works to stimulate the behavior, activate it, and direct it towards the goal (Mansour, 2002, p. 113).

Motivation is: a state of psychological or physical tension that activates behavior and directs it to specific goals (Arifij, 2002, p. 138).

It is also known that it is an internal stimulus that moves the individual to reach a specific goal. It is the force that pushes the individual to perform a certain behavior in order to satisfy and achieve a need or goal. Motivation is considered a form of urgent stimulation that creates a kind of activity and effectiveness (Fatima, 2015, p. 261).

Motivation is: an internal psychological or physical state that provokes behavior in specific circumstances, determines it, and connects it until achieving a specific goal (Rabee, 2010, p. 114).

There are Many Definitions of Motivation including:

Thomas definition is: stimulating and moving behavior or action, supporting the activity to progress, and organizing the activity model.

Ronald believes that: "It is the set of forces that drive behavior and direct it towards a goal" (Mansour, 2002, p. 118).

Motivation is also known as: a set of internal and external conditions that move the individual in order to restore the balance that has been disturbed (Adasi, 2009, p. 227).

It is defined as: "the intrinsic power that drives the behavior of the individual and directs him to achieve a specific goal that he feels the need for or its material, moral or psychological importance for him.

Motivation is an interactive personality trait that means the individual's desire for mastery and

excellence in achieving the tasks he undertakes (Abdul Jalil, 2012, p. 72).

Motivation is: an internal state that pushes the individual to exert effort, perseverance, challenge difficulties, and master academic work to achieve the best level of performance, success, and academic excellence (Zahran, 2003, p. 149).

Through the previous presentation of the definition of the concept of motivation, we find that scientists and researchers have tried to distinguish between the two terms, but there is a great similarity between them.

We also find that the two concepts are used synonymously, as both express the basic features of paid behavior.

And through the previous presentation of the definition of motivation and motivation according to it, the researcher comes out with this definition:

It is the extent of the student's desire to perform well and strive towards achieving success, distinction and excellence.

The importance of motivation: Motivation is important in many ways including:

- Making the individual more able to interpret the actions of others.
- Motives help in predicting human behavior if they are known, and thus his behavior can be directed to specific destinations that revolve within a framework that is good for society (Al-Matari, 2005, p.)
- Motivation is a means that can be used to achieve certain goals in a better and effective manner.
- Motivation includes the needs that move the organism in a certain direction as well as the

goals and objectives that it aims to achieve and reach (Dandash, 2007, p. 235).

Field Study Procedures:

Study Approach:

In this study, the researcher used the descriptive correlative approach which is the method that relies on the study of reality or the phenomenon as it exists in reality and is concerned with describing it as an accurate description and expressing it in a qualitative or quantitative expression. The phenomenon or its size and degrees of its association might be interrelated with various other phenomena.

Based on this view, the descriptive correlative approach was used in this study to find out the level of the trait for each variable among the study sample and to know the correlation between creative thinking and achievement motivation among the study individuals.

Study Population:

The population of the current study consists of all third-grade students in the secondary stage in the municipality of Gedaref for the academic year 2021-2022 AD, whose number is (2923) male and female students of whom (1037) males and (1886) females.

The Study Sample:

The main sample of the current study consisted of (300) male and female students from the third year of secondary school in Gedaref municipality schools for the academic year 2022 AD. The following tables show the distribution of the study sample.

Table (1): It shows the distribution of the study sample according to gender

Gender	Number	Percentage%
Male	150	%50
Female	150	%50
Total	300	%100

Study Tools:

The study tools are the means used by the researcher to obtain the required information from the sources specified in his study, and the choice of the tool depends on the subject of the study, the nature of the subject, the quality of the study community, and the circumstances surrounding the subject (Muslim, 2002, p. 36).

The Researcher used the Following Tools:

First: Creative Thinking Questionnaire (prepared by the researcher).

Second: Achievement Motivation Scale (prepared by: Muhaid Muhammad Al-Mutawakel).

Creative Thinking Questionnaire:

The researcher prepared this scale after reviewing a number of studies related to the current study, after reviewing the theoretical literature and with the help of the supervisor to find out the affiliation of each phrase to the aforementioned dimension, and also to verify the suitability of the vocabulary for the study sample.

The arbitrators agreed that the scale questions are appropriate and suitable, and they actually measure the issues raised in the study, with the exception of some phrases that they recommended to be amended. The researcher applied it to an exploratory sample of (40) male and female students who were chosen by a simple random method from the current study population, and after correction, the data was entered into the computer, and then the researcher did the following:

Table (2): It shows the correlation coefficients of the paragraphs with the total score on the creative thinking scale from the study

Variable Content	Corrected Correlation Coefficient	Correlation Coefficient	Number of Paragraphs	Level of Significance
Creative thinking	0.85	0.74	42	0.001
All statements	0.85	0.74	42	0.001

The researcher notes through the previous table (2) that the correlation coefficients of all paragraphs are positive and non-zero, meaning that the value of each of them is greater than (0.09). Therefore, the researcher decided not to delete any paragraph from the scale with this decision, so the modified image of the scale is its final image, which consists of (42) paragraphs.

Table (3): Demonstrates stability coefficient for creative thinking scale

Variable Content	Number of Paragraphs	Cronbach's alpha Coefficient (Stability)	Honesty Coefficient
Creative thinking	42	0.96	0.97
Total statements	42	0.96	0.97

Description of the final image of the creative thinking scale for the study:

At the end of the formation validation process for the purpose of not deleting any paragraph from the scale, with this decision, the image prepared for the scale is its final image, which consists of (42) paragraphs to represent the final image of the creative thinking scale about the study.

Achievement Motivation Scale:

This scale was prepared by Mahid Muhammad Al-Mutawakkil Mustafa, and it consists of (65) items that fall under many features; these features reveal the level of achievement motivation for the individual. On a number of studies, such as: the study of (Samia Fath Al-Rahman Ahmed, 2017) and the study of (Bint Wahb Abdel-Qader Ahmed, 2019), and other studies; the same arbitrators indicated the deletion and modification of some phrases to know the standard characteristics of the paragraphs, and the measure of achievement motivation in its form after arbitration in a society in the current study. The researcher applied it to an exploratory sample of (40) male and female

• Construction validity (internal consistency of paragraphs)

To find out the internal consistency of the items in the creative thinking scale about the study, the researcher calculated the correlation coefficient between the scores of each paragraph with the total score of the scale, and the following table shows the results of this procedure.

• The stability coefficient of the creative thinking scale for the study

To find out the stability coefficient of the creative thinking scale in its form that consists of (42) items, the researcher applied the analysis of variance method (Alf Cronbach's equation). Stability in the current study population and the following table shows this procedure.

students, who were selected in a simple random way from the current study population. After correction, the data was entered into the computer, and then the researcher did the following:

• Construction validity (internal consistency of paragraphs)

To find out the internal consistency of the items on the achievement motivation scale for third-grade students in the secondary stage in the municipality of Gedaref, the researcher calculated the correlation coefficient between the scores of each paragraph with the total score of the scale.

• The stability coefficient for the measure of achievement motivation

To find out the stability coefficient for the achievement motivation scale in its final form, which consists of (42) items, the researcher applied the analysis of variance method (Alf Cronbach's equation). With good degrees of stability in the current study population, the following table shows this procedure.

Assay stability:

Stability means that the measure is stable and not contradictory to itself, meaning that the measure gives the same results with a probability equal to the value of the coefficient if it is re-applied to the same sample.

The stability of the scale was applied to the respondents, using the split half method and Cronbach's alpha coefficient, as follows:

A- Split-Half Method: Split-Half – Coefficient

The Pearson correlation coefficient was found between the rate of the odd-ranked questions and the rate of the even-ranked questions for each hypothesis, and the correlation coefficients were corrected using the Brown Coefficient - Spearman, according to the following equation:

$$\text{Stability coefficient} = 2r/(1+r)$$

Where: r is the correlation coefficient

Scale validity: Validity

A- The veracity of the arbitrators:

A content validity test for the scales phrases was conducted by evaluating the validity of the phrases in terms of wording and clarity. The researcher presented the scales to a number of (9) academic and specialized arbitrators in the field of study, to analyze the contents of the Scales' phrases and to determine the compatibility between the phrases of each scale that was accepted. Some

phrases were modified, and after the scales were retrieved from the arbitrators, the proposed modifications were made to them, after which the scales were designed in their final form.

b- The validity of the internal consistency:

The researcher applied the scales on an exploratory sample consisting of (40) items, where the validity of the internal consistency was calculated by calculating the correlation coefficient between each statement of the scales with the total degree of the hypothesis to which this statement belongs.

Presentation and Discussion of Results:**Presentation and discussion of the first hypothesis, which reads:**

The level of creative thinking among third-year secondary students in the municipality of Gedaref is high.

To verify the validity of the first hypothesis of this study, the researcher used the (T) test for one sample in order to study the validity and significance of the sample responses in the level of creative thinking, through which the distinctive feature of creative thinking is deduced during those responses, and the following is the result of the study.

Table (4): Shows the result of the t-test for one sample

The variable	Number	Arithmetic Mean	Stand ar d Deviat ion	Degrees of Freedom	T/ Value	Level of Significa nce	Conclusion
Creative thinking	300	107.432	18.5	299	15.554	0.00	Level of Creative Thinking is High

By looking at Table (4), it is clear that the value of (T), which amounted to (15.554), is statistically significant at the level of significance (0.00). This indicates a high level of creative thinking among secondary school students in the municipality of Gedaref. The learning process no longer aims to provide students with a set of knowledge, skills, and attitudes, as much as it aims to modify and comprehensively and deeply change the behavior of learners to become more capable of investing all energies and self-possibilities in creative investment and innovation to the highest degree (Al-Kilani, 2009, p. 119).

The Holy Qur'an urged people to think about God's creation and made thinking one of the distinguishing features of the owners of correct minds. It also called us to think, meditate and train, and there are many Qur'anic verses that indicate

this; among these verses are the Almighty's saying: (And they reflect on the creation of the heavens and the earth) Surah Al-Imran verse (191), and in this regard, the Almighty says: (Thus does God make clear to you the verses that you may reflect) Surah Al-Baqara verse (219).

Presentation and discussion of the result of the second hypothesis:

"The level of achievement motivation among third-grade students in the municipality of Gedaref is high".

To verify the validity of this hypothesis, the data of the achievement motivation measure applied to the study sample were entered into the Statistical Package for Social Sciences (SPSS) program using (T. test) for one sample and comparisons of arithmetic means and the

hypothesis; the results were reached as shown in the following table (5).

Table (5): It shows the results of the t-test for one sample on the achievement motivation scale

Sample Size	Average	Arithmetic Deviation	The Standard Mean	Degree of Freedom	T/ Value		Level of Significance	Significance of the Difference
					Calculated	Tabular		
300	2.798	0.4875	2.874	299	2.487	1.96	0.05	Statistically Function

By looking at Table (5), it is noted that the arithmetic average of the study sample in the achievement motivation scale was (2.798) degrees, with a standard deviation of (0.4875) while the hypothetical mean was (2.874) degrees. To find out the significance of the statistical differences between the arithmetic mean and the hypothetical mean, the t-test was used for one sample, and the results showed that the calculated t-value of (2.487) is greater than the value of the tabular T which is (1.96), at the level of significance (0.05) and the degree of freedom (299). This indicates that the sample individuals have a high degree of achievement motivation, and thus the second hypothesis of the study was fulfilled. The result of the current study hypothesis agreed with the findings of (Fatima, 2014; Ant, 2016; Al-Youssef,

2018; Abu Latifa, 2011; Bint Wahb, 2019; Runaq, 2014). It found a high level of achievement motivation among the target group in the study. Achievement motivation among students is considered one of the important motives that direct an individual's behavior towards achieving acceptance or avoiding non-acceptance in situations that require success and excellence. Many studies have shown that achievement motivation is an important source of change in the learner's academic achievement (Al-Ghamdi, 2009, p. 116).

Presentation and discussion of the result of the fourth hypothesis:

There is a relationship between creative thinking among third year secondary school students and achievement motivation.

Table (6): Shows the correlation coefficient between creative thinking and achievement motivation

Variable	Number	Correlation Coefficient	Level of Significance	Statistically Significant
Creative Thinking	300	0.722	0.05	There is a Relationship
Achievement Motivation				

By looking at Table (6), we note that the value of the Pearson test (0.722) under the level of statistical significance (0.05) is a statistically reliable value in judging the relationship of the two variables to each other. The relationship between creative thinking and achievement motivation among third-grade secondary school students is positive. Table No. (6) shows positive correlation results between the paragraphs of the creative thinking scale and the variable of achievement motivation. The result means that there is a positive correlation between the two variables of the study. The amount of creative thinking among male and female students provides the level of achievement motivation, meaning that the male and female students who enjoy the most creative thinking are themselves, the most distinguished in achievement motivation, and thus the fourth hypothesis was fulfilled.

The result of the current study hypothesis agreed with the study of (Naima, 2020) and the study of (Zhang, 2001) that there is a relationship between creative thinking and achievement

motivation in the target group. While the result of the current study hypothesis differed with the study of (Salim, 2013) and the study of (Saadi, 2001).

The process of innovation cannot take place in isolation from the contexts of psychological processes, the most important of which is the achievement motivation, and that the individual cannot accomplish innovative activities except through latent motivation. (Jasim et al., 2010, p. 131). Likewise, (Darwish, 2003) indicated that motivation, whether internal (such as desire, research, and investigation for a new jihad), or external (such as the desire to appear and excel) is an important factor in the emergence of creative works, and that the association of internal motivation with social needs is one of the necessities of creativity (Darwish, 2003, p. 160).

Presentation and discussion of the result of the eighth hypothesis:

There are no statistically significant differences in the level of creative thinking among third-grade secondary school students due to the type of course.

To validate this hypothesis, the researcher used the value of the t-test to test the differences between

the averages of two independent samples. The following is the result of the study.

Table (7): The result of the (t) test to detect differences between the means of two independent samples

Course Type	Sample Size	Arithmetic Mean	Standard Deviation	Value of the (t) test	Conclusion
Scientific	112	2.97	0.51	2.88	There are no Significant Differences
Literary	188	2.98	0.27		
Total	300				

By looking at Table (7), it is clear that the value of (T) is a statistically non-significant value below the level of significance (0.05), and the result confirms that there are no statistically significant differences between the two variables under test and study, and by looking at the arithmetic mean, the differences between the two variables are confirmed to be non-significant. The arithmetic mean for scientific students (2.97) is close in degree to the arithmetic mean for literary students (2.98), and this slight difference suggests that there are no differences between the two variables under measurement. This confirms the acceptance of the eighth hypothesis of the current study.

The researcher explains that creative thinking is not specific to the specialization as it is affected and developed through students practicing certain types of educational activities and practicing intellectual processes represented in creative thinking skills such as: fluency, flexibility, originality, and others. The researcher also believes that the similarity of the educative and educational methods surrounding students in secondary education is sufficient to remove statistically significant differences due to the variable of the type of specialization (course) (scientific and literary).

Conclusion:

- The level of creative thinking among third-grade secondary school students in the municipality of Gedaref is high.
- The level of achievement motivation among third-grade secondary school students in the municipality of Gedaref is high.
- There is a statistically significant correlation between creative thinking and achievement motivation among third-grade students in the secondary stage in the municipality of Gedaref.
- There are no statistically significant differences in the level of creative thinking among secondary school students in the municipality of Gedaref due to the gender variable (male-female).

Recommendations:

- Paying attention to youth in general and secondary school students in particular, and providing programs that help develop their creative skills.
- Early detection of creative individuals with training of teachers and development of curricula that suit their needs, and then care for them and develop their abilities to think creatively to achieve the highest levels of development and productivity.
- Establishing training programs aimed at developing achievement motivation at various educational levels.
- Activating the role of nurturing creativity by activating the role of psychological and academic counseling in the various educational stages.

Suggestions:

In light of the findings of the current study, and after interpretation and discussion, the following proposals were made:

- Conducting a study on the problems that secondary school students suffer from, which affect their creative abilities and psychological development.
- Conducting a study dealing with the relationship of creative thinking with other psychological variables.
- Conducting a study similar to the current study on other academic stages.
- Conducting a comparative study on the variables of the current study (creative thinking and achievement motivation) between gifted students and ordinary students.
- Conducting a study titled with the role of educational institutions in developing creative thinking among students at all academic levels.

References:

- Abdel-Moati, H. (2003). *Psychological Disorders in Childhood and Adolescence, Diagnosis and Treatment*. Cairo Bookstore.
- Akhras, N. M. (2011). *Introduction to Special Education*. Al-Rushd Library, 2nd Edition.
- Al Dardir, A. (2005). *Social Aspects in School Learning*. World of Books.
- Al-Dahri, S. H. (2005). *Principles of Mental Health*. Dar Wael for Publishing and Distribution, first edition.
- Al-Isfahani, A. (1992). *Vocabulary of the Noble Qur'an*. Dar Al-Qalam, Al-Shamiya House.
- Al-Rashwan, S. (2008). *multiple factors that fuel school violence*.
- Al-Rimawi. (2003). *Developmental Psychology, Childhood and Adolescence*. Dar Al-Maysarah for Publishing and Distribution.
- Al-Rimawi, M. O. (2003). *In Child Psychology*. Dar Al-Sharqawi, first edition.
- Al-Shinawi, M. (2010). *The socialization of the child*. Safaa Publishing House, first edition.
- Bani Jaber, J. (2004). *Social Psychology*. Dar Al Thaqafa Library for Publishing and Distribution, first edition.
- Ezz El-Din, Kh. (2010). *Aggressive Behavior in Children*. Dar Osama for Publishing and Distribution, first edition.
- Fayed, H., (2005). *Psychological and Social Problems*. Thebes Foundation for Publishing and Distribution.
- Hussein, A. (2003). *Education and Teaching of the Blind*. World of Books.
- Ibrahim, A. N. (1998). *Criminal Sociology*. second edition.
- Ismail, N. I. (2003). *The Worlds of Healthy Mental Health*. Ibtrac for printing, publishing and distribution.
- Moamen, D. E. (2004). *The Psychology of Childhood and Adolescence*. Madbouly Bookshop, first edition.
- Muhammad, N. Q. (1999). *Child Study Methods*. Al-Shorouk Publishing House. Distribution, first edition.
- Naima, Mizrara (2018). *the ceartiv thinking among secondaru school studnts*, Algrya university, Algeria.
- Nasr El-Din, J. & Lokia. (2006). *Basic Concepts in Social Psychology*. Ain Millia, Dar Al-Huda for printing, publishing and distribution.
- Omariya, S. (2005). *Mental Health and Psychological Counseling*. Arab Community Library for Publishing and Distribution, first edition.
- Ramadan, R. A. (2000). *Contemporary Horizons in the Mental Health of Children*. Dar Al-Maktab Al-Alamiyyah for publication and distribution.
- Rifai, A. (2013). *The Horrors of School Violence*. Dar Al-Fikr Al-Arabi.
- Saadi, A. Sh. (2014). *The Psychology of Individual Differences*. Dar Safaa for Publishing and Distribution, 1st Edition.
- Salim, M. (2003). *selfesteem, self-confidence, and teachers' guide*. Dar Al-Nahda Al-Arabiya, first edition.
- Shehata, H. (2008). *The Self and the Other in East and West - Images, Indications and Problems*. World of Books, first edition.
- Shreim, R. (2009). *Psychology of Adolescence*. Dar Al Maysara, first edition.
- Sobhi, S. (2003). *Man and his mental health*. the Egyptian House.
- Teacher's Guide. (2009). *Stop School Violence*. UNESCO.
- Youssef Q. A. (2002). *General Psychology*. Dar Al-Fikr for Publishing and Distribution, first edition.
- Zahrn, H. A. (2002). *Guidance and Psychological Counseling*. World of Books, Third Edition.
- Zhang, B. M. (2014). *The Reference in Personality Scales*. 3rd Edition, Dar Al-Kitab Al-Hadith.