

Tactical Thinking and its Relationship with Solving Mathematical Problems Among Mathematics Department Students

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Abstract—This research aims to know the essence of the correlative relationship between tactical thinking and solving mathematical problems. The researchers followed the descriptive research method to analyze relations, as all students from the mathematics department in the morning study were part of the research group. The research sample of (100) male and female students has been chosen based on the arbitrators' views. The tools for studying the sample of research composed of (12) items of the multiple-choice test in its final form to measure tactical thinking and require establishing a test of (6) test-type paragraphs to solve mathematical problems. The findings showed that sample students' tactical thinking and their capacity to overcome mathematical problems are flattering for all students.

Keywords—Tactical thinking, mathematical problem-solving

1 Introduction

The Almighty says: "And among His signs is that He created spouses for you from among yourselves to dwell in, and He made affection and mercy among you. There are signs in that for people who contemplate". The Holy Koran urged us to use our minds to consider and contemplate what lies around us to discover the truth. Moreover, because our period is marked by incredible and rapidly changing scientific progress, individuals cannot survive in this age unless they can grasp scientific life's practical elements. The real investment is a matter for the human mind to invest in and for the preparedness of a person who can face life variables as mathematics is seen as a way of thinking and mode of thinking. It is seen as a fecund area for training sound thinking practices, which are regarded as an induction building, which begins with Muslim introductions' truthfulness. From them, logical rules are derived [1]. Modern math curricula and teaching methods confirm and follow searching and discussing methods to achieve the solution [2,3], that mathematics is a thought method

dependent upon comprehension and reasoning. In [4], it is suggested that mathematics has excellent capabilities for preparing students for contemporary problems and contributing to the growth and resolution of Community issues, to deliver science-based thought skills and multiple modes of thinking such as critical, innovative, divergent, and imaginative thinking. Research problems arise from the interest of many professors in mathematics in cognitive matters, and the low level of thinking is the level of memory alone. Simultaneously, students should be forced to think over their models and levels, especially as we live in rapidly changing societies. The ability to think well enables a person to choose and thus adapt and live with the needs of our times, mainly because of its nature. University education is the way to learn about the surrounding world. Due to a lack in tactical thought studies and how they can be developed in mathematics, research has been required on how students from universities, especially those from the Department of Mathematics, can develop tactical thinking.

2 Importance of Research

2.1 Theoretical section

It helps the officials and others responsible for curricula in several ways, including coordinating and submitting academic material on a tactical basis. In addition, make good tactical thinkers for students in general, particularly in mathematics. You know where to turn and how to solve challenges and reach the best possible objective as soon as possible. Moreover, his research offers a modern evaluation of the concept of tactical thinking, and research results can provide a deeper understanding of the essence and the mathematical problem-solving skills of this variable between a sample of students of universities, as well as the degree to which other variables such as specialization influences this variable. To Applied Section, firstly, describing the level of student tactics. The, presenting students with a measure of tactical thought. Secondly, standing on the extent to which students of the third stage, Department of Mathematics Sciences, College of Education for Pure Sciences / Ibn Al-Haitham, possess the skill of solving mathematical problems. Finally, learning how tactical thought and mathematical problem solving apply to them. The main reasons of this research are knowing the level of tactical thinking, knowing the level of solving mathematical problems, and Standing on the nature and direction of the relationship between analytical thinking and solving mathematical problems.

2.2 Research hypotheses

The following null hypotheses were made:

At the significance level (0.05), there is no statistically significant difference in the actual mean and the average hypothetical for third stage students, the Mathematics Department, the College of Education for Pure Science / Ibn Al-Haitham, the University of Baghdad at the test of tactical thinking. There is no statistically significant difference between the average actual results of third-school students, the department

of Mathematics Sciences, the University of Baghdad, College of Education for Pure Sciences / Ibn Al Haitham in the Examination of Mathematical Problems, and the average hypothetical results for students. For 3rd-phase students, Department of Mathematics, College of Education for Pure Science /Ibn Al Haitham, University of Baghdad, no connection exists between tactical thought and solving mathematical problems at a significant level.

2.3 Research terms

It is "a complete mental, cognitive and emotional process that builds and is based on the outcome of other psychological processes such as perception, feeling, and imagination, as well as mental processes such as remembering, abstraction, generalization, distinction, comparison and inference [5-7]. In addition, the term of Strategic Thinking means analyzing, exploring, understanding, and determining the complex situation and developing a plan that would draw the measures with the greatest positive impact possible to achieve a previously defined goal [8-10]. Tactical Thinking: it is defined as "The way to solve problems based on the combination of the convergent method with divergent thinking processes, that is, thinking about (the situation) and is short-term [11,12]. The researcher defines it procedurally as "the ability of the sample students to respond to the test items of the tactical thinking prepared for the research, and it is measured by the overall score they obtain on this test." The Mathematical Problem described as new math or life situation in which the student must use the previously learned mathematical information [13,14]. In [15], it describes a situation of education that the learner is subject to and has no ready-made solution, keeping in mind that the academic position fulfills the mathematical problem's conditions as the problem is solvable. The student's efforts to overcome it are apparent. It was described by [16] as an activity the student undertakes to relate the relationship between the prior information and the problem data and its progress towards the desired objective. The researcher defines it procedurally as "The ability of the sample students to respond to the test items for solving mathematical problems prepared for the research, and it is measured by the total degree they obtain on this test."

3 Theoretical Background and Previous Studies

3.1 Thinking

There is no satisfactory definition of thinking because most definitions are satisfaction at one level or another. It is the studied investigation of experience for some purpose. "Thinking is defined as the ability:" The effect of thinking is a skill." The science of thinking is one of the most prevalent issues between scholars. In [17], the author thinks Mathematics is an abstract science of human mind formation and imagination. It is achieved within theories, techniques, and thought patterns, using many ways of thinking, for example, a logical inference to verify mathematical data and a mathematical knowledge extrapolation [18,19]. The classification of thought into

patterns was stated by [20], as it is done by two bases: analog, objective and logical. As for the analog pair thinking habits, they are:

1. Divergent thinking
2. Inductive and deductive thinking
3. Creative thinking and criticism
4. Thinking focused on the brain's left side and focused on the brain's right side
5. Thinking through hypothesis and thinking through hypothesis testing
6. Abstract and non-abstract thinking
7. Exploratory and analytical thinking
8. Open-system thinking and closed-system thinking
9. Strategic thinking and tactics
10. Realistic and imaginative thinking
11. Thinking correctly and logically
12. Sensible and abstract thinking

3.2 Thinking skills

The thinking was divided according three types. Firstly, Basic thinking skills, including knowledge, observation, comparison, classification, understanding, application, analysis, synthesis, and evaluation. Secondly, medium mental processes that include: Critical and creative thinking. Finally, Mental strategies, including problem-solving, decision-making, and conceptualization. Super cognitive operations, which include: All previous operations. The primary goal of developing students 'thinking skills and imparting them is to enable them to learn how to obtain knowledge and enable them to learn knowledge. Thinking skills enable students to achieve the best benefit from the information they will obtain, the experiences that they will pass through, or even the knowledge they receive from Those around. In [21], classified thinking skills & grouped them into eight categories as Focus skills (identifying problems, setting goals) and Information gathering skills (observation, question formulation). The most recent strategic thinking problem makes it challenging to research and is one of the issues relevant to high-level mental capacities, which generally describes its definition. Strategic thinking is seen as preparing for the future at its beginning. If we do not know what to do precisely, we will start to think seriously about the problems we have struggled to solve in previous knowledge/experiences [22,23]. Therefore, it is unnecessary to dispense with logical thinking of previous experience, innovative thinking based on new concepts and ideas besides strategic thinking being a pressing necessity. Inside the human mind a set of complex processes at an unprecedented pace, its job is to simplify and analyze matters in mind into elementary elements that can be related, likened, displayed, interpreted, and taken, and establish an interpretation or theory that constitutes a secure basis for realistic implementation and free-thinking exhaustion. The treatment of perspective [20] is strategic thought. Furthermore, because strategic thinking is seen as synthetic thinking, which implies intuitive and imaginative thinking, not analytical thinking, which is logical and rational thinking, it is thought of as a way of thinking based on a forward-looking approach,

benefiting from the facts of the past and present data and beginning with its work inconsistent terms from top to bottom with the faculties based on human capabilities, especially mental energies and capacities. Thus, a structural and constructional thought focused on knowledge, insight, and intuition that evokes a distant picture and sketches the future's contours before it takes place. Creativity and creativity are based on analysis, contemplation, extrapolation, reasoning, and conclusion to pursue new ideas and new applications of previous knowledge. The strategic way of thinking is innovative and critical [24]. The thought can be split in two separate ways: Ordinary thinking: It can be called traditional or ineffective thinking, and it is practiced by the majority of people in their daily routine and does not require much mental effort, but rather is based on simple thinking represented by understanding, paying attention and remembering, that is, it is a concept based on trying to anticipate what the new reality will be (the future in its frame Flex) [25,26]. Strategic thinking: It is complicated or directed thinking, and it is sometimes called effective thinking, and it requires high mental capabilities and distinct cognitive experiences represented by creative thinking, critical thinking, and strategic thinking [27,28]. The Essential Elements of Strategic Thinking are Concentration of thought or intent, thinking outside the ordinary, think about time, smart seize new opportunities \and deriving hypotheses [42].

3.3 The ten skills for strategic thinking

Tactical thinking people have several advantages and skills that distinguish them from others, as follows:

1. Not to be in a hurry to issue judgments (no prejudice)
2. Looking for creative solutions (not the right solution)
3. Thinking about the depths of the causes (not just the phenomena)
4. Seeking to hear other points of view (and not being intolerant of opinion)
5. Searching for a link between unrelated matters (and not taking the outward appearance)
6. Not eliminating intuition and feelings (and not adhering to logic only)
7. Focus on thoughts (more than on behaviors)
8. Searching for more than one explanation (not taking the first explanation)
9. Searching for another excellent solution (and not taking the first solution)
10. Long dialogue and deep theorizing (not a quick solution) [43]

3.4 Tactical thinking

The principle of tactics has been regarded as weapons instructors since the late middle centuries. The word 'tactic' comes from the Greek word 'taki,' meaning order, and aims at controlling men in a compact mass, subject to a chief's authority. Where tactics are historically known for war, it is now "the art of mixing the actions of all military means in order to reach the objectives determined by the practical strategy"[29], but now it has to expand. "If you do not plan, you plan to go wrong," it is said, and true wisdom is not only to see what is in front of you but to foresee what

will happen in the future. The future forecast is based on agreed assumptions, past experiences, and reliable research, such that yesterday's modes of thought were not tailored to future difficulties. That is why the task of long-term strategic thinking must activate us by designing successful strategies with the flexible application of these strategies to face local and global challenges. A study, interpretation, foresight, formulations, and decision-making [9] are built on strategic thinking. The analysis is the left and analogical diagrams of the hemisphere. The layout is the work of the right hemisphere, and the imaginative thought is atypical. When we see a scenario and then deconstruct it into bits and explain it, the strategists do not necessarily contribute to imaginative restructuring. The ability to differentiate between short-term (tactical) and long-term (static) thought and balance them is an essential element of the strategy and is critical in our changing world to continuous strategic thinking.

Table 1. Comparison of strategy and tactics

No.	Strategy	Tactics
1	They are drawn up based on general guidelines	Based on circumstances and developments
2	It bases its reference on leadership, the management, or academic philosophy	It bases its reference on the strategy
3	Commitment to the elements and controls of the plan	Adaptation according to the situation
4	A comprehensive plan to reach the final goal	A partial plan to achieve a partial goal
5	Long-term, slow-reaction	Short-term response
6	Set for future results	Real-time results
7	It is based on planning and logical thinking	Based more on creativity and capturing opportunities

Thus, you can say: I won a battle with strategies (in a certain sense), and I won a war with a strategy (in all angles). In the near and far future, tactical thinking is one of the most challenging employment skills (2020-2050). Since the future job will not be the only change on the labor market, future opportunities will require skills that fit your description, noting the fact that, due to their great frequent use of resources, creative and intellectual skills have gained the most significant attention by retaining their place among the essential competencies in the field of academic and educational science. Job in which thinking abilities, preparation methods, and learning skills are classed as potential work skills in the future. Future employment may primarily include analyzing the complex issues to make the most appropriate decisions, including scientific and strategical analysis and data analysis. Parents and academics also need to look for ways to improve and refine their children's skills to prepare them for the word [30-31].

3.5 The tactical thinking pyramid

The tactical thought hierarchy on which the tactical analysis of a situation is based, then the answer to the question of what will happen after the tactical analysis and then to find the tactical alternatives, the vision of each detail, and then the comportment and action [32,33]. Company and management books differentiate between organiza-

tional, tactical, and strategic thought. Job is a daily business or work in offices or labs—organizational thinking. As for tactical thinking, it is medium-term thinking and concerns 6-12 months during the long-term strategic thought. Tactical thought is subordinated from this point of view to strategic thinking by identifying the plan and then taking the appropriate steps to execute the strategy. About analysis, tactical and strategic approaches need to be taken into account, as these are valuable tools in developing an intelligent approach to challenges and problems. The strategy is often focused on possibilities, the correct movement for a particular context, and the right moment. It means that circumstances are always being manipulated. Strategies are linked to the place concept; unlike the strategy, tactics are a metric determined by the lack of an appropriate location. The tactical room is the other's space. Tactics are relatively different acts that are specific and time-based [28]. Tactics are related. Mathematical problem solving is always a problem, as long as a learner has a reason to work the exercise or problem or draw a geometric figure or interpret a connection in a problem. The study's situation confuses and inspires the learner to do so. The solution to the problem, by introducing principles, generalizations, and mathematical skills, is the question to be answered. John Dewey believes that a person learns to solve the problem by meeting several challenging situations and discovering the solution. Students use different sources, observations, visits, and interviews to lead them to the solution [34,35]. Their goal is to find out more about the solution. Through this study, the work plan is established, the findings are categorized and summarized. The solution to a problem starts in simple, logical steps (and continues and ends). However, as long as we walk in a steady, clear direction with long steps and sharp vision, a great distance is required, less than a thousand kilometers of steps. The physical limits of mathematics are abstract [36,37]. There is an intimate connection between thinking and solving problems since problem resolution is only accomplished through its different models and can be achieved in no other way. Since the student is faced with problems and issues, which are commensurate with their level of mental development and can orientate them in shaping problems, in the awareness of their limits, in the collection and seeking of information on them and solutions, thought and their methods are best done in the sense of problems resolution. The problem-solving approach focuses on the practical and scientific skills required to create strategies and public policies capable of resolving and addressing those problems. The problem-solving process, according to [38], can produce better educational results than others are. In the study of these two researchers, they found that preparing students to solve problems enhances the quality of theoretical comprehension, practical skills, and interest in learning the topics studied. In many other scientists, the solution approach takes the student closer to his college and does not separate him from society and his university walls' problems

3.6 Mathematical problem-solving steps

To solve the problem, four steps can be identified. Firstly, Understanding the problem: Understanding it and its essential elements, which are the donations, criteria, and conditions, and understanding it. Then, the plan for a solution: The plan represents an

in-depth view of what the individual will be doing, and the plan for solving problems requires the creation of a mental conception to solve this problem. Secondly, Implementation: The student implements the solution plan, such as writing the steps for solving the problem sequentially, sequentially, and logically. Finally, Verification (reviewing the solution): it means verifying the correctness of the solution, and it may be by going in reverse steps of the solution, as verification maybe by examining the reasonableness of the result reached by the student, as well as the reasonableness of the steps taken by the student. Besides, it is the primary purpose of an educational method to explore, analyze, synthesize, observe, dialog with others, creativity, interest, freedom of thought and comprehension, and knowledge in life circumstances. This means that students can learn and learn to understand and understand various styling of thought. According to the researchers' knowledge, no studies on tactical thinking in mathematics were given by analysing the literature and science journals and international networks' quest (the Internet).

4 Methods

4.1 Research methodology

In conducting research, it follows a descriptive/study relationship since the two research goals are the most suitable approach. The descriptive approach is considered a method of research that collects information and data on a phenomenon, something or reality to identify the phenomenon we study and to identify its current consciousness and its strengths and limitations to know the value or the degree to which partial or significant changes are necessary [39]. The mentioned approach is considered a method of research. All students at the department of Mathematics (morning studies) in College of Education for Pure Science / Ibn Al-Haitham, the University of Baghdad for the academic year (2018-2019). Analysis Sample consists of the third stage students (morning study), the number of students was 142, and their number was (138) after removing those who failed and postponed. Moreover, those who play chess are chosen randomly. To respond and to review his theories to two research questions. The tactical thinking by test consisting of (12) objective test paragraph (multiple choice) had to be calculated in its end shape. Also, to construct a statical of (6) test-type paragraphs to solve mathematical problems.

4.2 Tactical thinking test

To formulate the Tactical Think Test's subject matter, the researcher could not get a single test that explicitly tests tactical thinking based on the literature and stated mathematics. Tactic thinking areas have been identified in their initial form, and in light of the fields identified, the tactical thinking test points (12) have been formulated, which, under a particular tactical, require students to provide logical solutions, and It was built on the students' mathematical accumulation. The tactical thinking areas have been identified and showed to the experts in education, psychology, and mathe-

matics and teaching methods were then presented in order to express their opinion and observation on the validity of the fields for which and for which paragraphs were drawn up, and also to check the apparent validity of the test and to determine the validity of individual parts in measuring the variable. After some improvements to the wording of some of them were made, they all got approval (85 percent) from the experts, and so the test was ready for the exploratory sample. The questionnaire has administered to a group of (38) male and female students to identify the clarity of the test items and their interpretation by the exploratory sample and the clarity of the directions for answering it. The directions were requested to read first, then take care of the test articles and examine any discrepancies. It was apparent that the guidelines are clear, and the test items for all students are also understandable. The time spent answering the question was calculated by calculating the time allowed for each level, decided by arbitrator opinion, for each of these questions according to a challenge level, and (42) minutes were therefore taken for each question. To obtain statistical indicators for examining the test of tactical thinking, the following steps were followed: Firstly, after correcting the answers, each student's total score on the test was determined, and then the students' grades were arranged in descending order of the highest score. Secondly, what represents the upper (50%) of the recipients of the highest grades and the lower group what represents (50%) the lowest (50%) of those who obtained the lowest scores, and because the size of the survey sample consists of (38) male and female students. The sample was taken completely. Finally, the number of correct answers was calculated for the upper and lower groups, and the following statistical analyses were performed: Coefficient of discrimination: the distinction between the test items can be measured by finding the correlation coefficient between each item's scores and the trial's total scores. Furthermore, all test items were found to differentiate. Difficulty factor: for paragraphs, a difficulty factor can be estimated: difficulty factor in paragraph + facilitation factor = 1 Results ranged from (0-0.65) to the sources suggesting that any paragraph with an arithmetical mean of (0.50) within the distribution of difficulty coefficients with a range of (0.20-0.80) may be appropriate and suggested to hold the difficulty factor. Validity coefficient: The validity of the instrument is considered to be one of the most critical psychometric features relative to the other features of the test due to the importance of integrity with the intended goals of the observable instrument to be achieved and its relation with the form or reliability of the instrument to be achieved. Wait and weigh instead of or incorporate nothing else [40]. Valid: It calls for a panel of experts and experts participating in the test to present a test or scale in its original form, which is why it is often referred to as the veracity of experts or arbitrators' validity and, if these experts agree, the validity of the scale or test can be obtained because it tests and does not measure its importance. Therefore, the test was presented to many referees in teaching, assessment, evaluation and psychological methods, and the statistical sciences, who accepted that the test items evaluate tactical thoughts in the research sample, which is valid. Stability: The formulation 20 approach from Keoder-Richardson aims to obtain a reliability value estimate for the tests whose word values are binary, i.e., one is valid or null. The inner accuracy of the test vocabulary implies that these words have a strong correlation. This homogeneity of vocabulary, namely, consistency between each test vocabulary

[41-43], is therefore favored by Keoder-Richardson. The value of the test elements' uniformity was (0,814), and you can trust this result. The test was then prepared for use in the research sample following the necessary tactical thought test items' necessary analyses. The psychometric properties of the test items were checked and validated.

4.3 Problem solving mathematical exam

The solution to the mathematical problem is when the student has no real-time solution to the problem. Therefore, the test paragraphs have been established consisting of 6 items of the type essay exam and focused on the students' mathematical accumulation. In addition to evaluating their logic and appropriateness for measuring the area for which their calculation was planned, it was introduced to a group of mathematics specialists and methods of teaching them to express opinion and observation of the validity of the test and to judge the validity of each paragraph in terms of the measurement. After some improvements to the wording of some of them were made, they all got approval (85 percent) from the experts, and so the test was ready for the exploratory sample. Using the test to the sample during the response, the weighted average time between the first and last five students who took the test was calculated, and (80) minutes were appropriate.

Statistical analysis of the test items: The same measures were taken in the statistical analysis, and then the following statistics were carried out in terms of coefficient of discrimination. The two-term group scoring procedure was used, and all the test items were found to be distinguished.

The factor of difficulty: The paragraph difficulty factor can be determined by the percentage of students who have incorrectly replied about the paragraph and between the results (0-0.75).

Validity: Many arbitral experts from mathematical fields and methods for their education, calculation, and assessment were tested to determine the mathematical problems solving skills for a research sample in the mathematical fields, and thus this test has been deemed ostensibly valid. This test is based on mathematical problem-solving.

Stability: the reliability of the test items of mathematical problem-solving abilities measured using the Alpha Cronbach method (which is acceptable both for the objective and for the test paragraphs) was (0.925). This outcome is acceptable. This demonstrates a good deal of reliability in the mathematical problem-solving examination. Furthermore, thus the test was ready for application to the research sample. The test was applied to the basic sample of (100) male and female students, with the help of the department's teachers, in one day.

5 Results

5.1 Results related to tactical thinking

Table 2. The mean and the T-value

The talsample	Arithmetic Mean	Std. Dev.	Std. Error Mean	Hypothetical mean	Computed T-test value	Tabular T-test value	Statistical significance	Degree of freedom
100	6.45	1.416	0.141	6	3.191	1.660	0.05	99

We find that the measures for which the mean of arithmetic is more significant than the hypothesis, which implies that sample students have tactical reasoning. To test the null hypothesis, "there is no statistically significant difference at the level of significance (0.05) between the average true performance and the average hypothesis performance of the sample students on the tactical thinking test" This supports the conclusion, mainly because the sample is made up of students from the Department of Mathematics who have logical thinking and their responses are commensurate with situations. This is a natural thing that they understand employing studies that they have learned to know and manage the problem step-by-step and keep an eye on seeking a solution that makes him a tactical thinker. Based on the sample students' results, three questions were asked, each for (8) grades and three questions each for (6), depending on the solution steps and their accuracy. The arithmetic performance average of the students (22.7). Comprised of the average per capita (21), the real output is higher than the hypothesized levels. It shows that the sample students possess the ability to solve mathematical problems compared to the hypothetical performance of the academic year (2018-2019). This is a matter of course that students of the department rely on critical thought and have been trained to solve and deal with the Science and practical skills required through their studies. The validity of the following null hypothesis was tested: "There is no statistically significant difference at the level of significance (0.05) between the average real performance and the average hypothesis performance of the third stage students, Department of Mathematics Sciences, College of Education for Pure Sciences / Ibn Al-Haitham, the University of Baghdad on the mathematical problem-solving test that Prepared for research purposes.

Table 3. The results of the T-test to measure the significance of the difference between the average real and hypothetical performance of the research sample students

Mean	St.div.	Std. error	Hypothesized mean	Calculated T-value	Scheduled T- value	Degree freedom	Statistical significance
22.7	0.587	5.876	21	1.660	2.896	99	0.05

The determined 'to is less than the tabular 't,' so the null is approved, and the alternative is refused. That is, there is no statistically significant difference at the level of significance (0.05) between the students 'real performance average and their hypothesized average performance on the mathematical problem-solving test, and this sup-

ports the conclusion that was reached. They have been trained as 3rd-stage mathematics students to solve any mathematical problem where the solution method is unknown in advance. They have the knowledge, capacity, and skills for solving problems that are the best solution. For students in third class, Department of the Science of Mathematics, College of Education for Pure Sciences/Ibn Al Haitham, University of Baghdad, two tests were prepared to this end. The validity of the following zero-rated hypothesis was tested., "For 3rd-phase students, Department of Mathematics, College of Education for Pure Science /Ibn Al Haitham, University of Baghdad, no connection exists between tactical thought and solving mathematical problems at a significant level and the result was as follows

Table 4. Correlation coefficients between tactical thinking & problem solving and the significance of correlation when the research sample

Relation	Correlation coefficient	The computed T value of the correlation coefficient	The tabular T value	The degree of freedom	Indication level
Tactical Thinking with Mathematical Problem Solving	0.232	2.360	1.984	98	0.05

The measured value of T is greater than the tabular value of T at a meaning level (0.05) that demonstrates a rejection of the initial null hypothesis about tactical thinking and its connection to mathematical problem resolution. This is a positive correlation coefficient between a tactical thinking approach and the samples' theoretical problem-solving. In other words, the two variables are highly directly correlated. This speech is rational since it is understood that the top of the mathematical pyramid is problem-solving. Someone with a strong ability to overcome a mathematics problem will trigger what they already have until the problem can be solved and managed. Solving a mathematics problem is a cognitive mental activity that requires cognitive and structured mental behaviour, which students use to solve the problem correctly and adapt to life's problems. Besides, anyone who possesses all of this has tactical thinking and can deal with all his qualifications because he has a knowledge base that enables him to do so.

6 Conclusion

1. Third stage students, Mathematics Department, College of Education for Pure Science/ Ibn Al-Haitham; at University of Baghdad have a fair degree of tactical thinking.
2. They have good mathematical problem-solving capability.
3. There is a connection between tactical thought and solving mathematical problems among student resolution in general.

7 Recommendations

1. Having the capacity of educational leaders to think strategically, including tactical ones, and to improve the skills of students to respond to the challenges of the times.
2. Based on the explosion of information and technology, the students need to improve their thought skills, especially the acquisition of thought. It is expertise and a skill that all university students, particularly mathematics students, need to develop.

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