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The Effectiveness of some Creativity Strategies for developing Student teachers' Performative Competence in Practicum subject in English Language Department

Hind Abdullah Khaleel
hndbdallh80@gmail.com
Asst. Lect. Hind Abdullah Khalil Al-Jubouri
Ministry of Education in Iraq /General Directorate of Education in Salahuddin

فاعلية بعض استراتيجيات الابداع لتنمية الكفاءة الادائية لدى الطلبة المدرسين في مادة التربية العملية / قسم اللغة الانكليزية

م.م هند عبد الله خليل
وزارة التربية / المديرية العامة لتربية صلاح الدين

Abstract:

The research is a treatment of an existing problem, especially with practicum subject, that is considered the practical product of all parts of the previous university study. It is an attempt to develop performance competence some creativity strategies to make the student teacher have the skill of the successful teacher during the application period and after graduation. The researcher used some creativity strategies, employing those strategies in developing performance efficiency, and this appeared clearly from the research tool, which was represented by the observation checklist and the comparison between the experimental and control groups, and after analysing the research results, the research revealed several results, including:

-The cognitive performance aspects of student teachers in the pre-application were associated with a clear decrease in their knowledge of teaching skills.

-There is a significant increase in the performative aspects in the post-application due to the application of what they learnt in the form of activities, questions and exchange of experiences in real teaching situations.

-Teaching based on the strategies in the light of continuous evaluation of their performance aspects has contributed to raising their level of performative thinking to higher levels.

Keywords: Creativity Strategies, Performance Competence, Student Teachers, Practicum Subject.

ملخص البحث:

البحث هو معالجة لمشكلة قائمة خصوصا مع مادة التربية العملية التي هي النتاج العملي لكل جزئيات الدراسة الجامعية السابقة ومحاولة لتنمية كفاءة الاداء في بعض استراتيجيات الابداع للوصول بالطالب المعلم الى مهارة الاستاذ النشط والناجح خلال فترة التطبيق وبعد التخرج حيث استخدمت الباحثة بعض استراتيجيات الابداع موظفة تلك الاستراتيجيات في تنمية الكفاءة الادائية وظهر ذلك واضحا من اداة البحث التي تمثلت ببطاقة الملاحة والمقارنة بين المجموعتين التجريبية والضابطة ، وبعد تحليل نتائج البحث توصل البحث الى عدة نتائج منها:

-ارتبطت الجوانب الأدائية المعرفية للطلبة المعلمين في التطبيق القبلي بانخفاض واضح لقلة معارفهم حول مهارات التدريس.

-ظهور ارتفاع ملحوظ في الجوانب الأدائية في التطبيق البعدي وذلك لتطبيق ما تعلموه من صورة أنشطة وأسئلة وتبادل خبرات في المواقف التدريسية الحقيقية.

-التدريس في الاستراتيجيات في ضوء التقييم المستمر للجوانب الأدائية التي مروا بها قد ساهم في ارتقاء مستوى تفكيرهم الأدائي إلى مستويات عليا.

الكلمات المفتاحية : استراتيجيات الابداع ، كفاءة الاداء ، الطلبة المعلمين ، التربية العملية.

Chapter One

1. Statement of the Problem:

What the researcher felt through her practice of the teaching profession for a long time, she saw the need to consider the development of education curricula at various stages and to give great importance to the practical aspect of development, introduce or update the objectives and keep pace with the development in the world today in anticipation of the studies that emphasized the need to include the principles and concepts of creativity through various school subjects and generalize them in different ages and levels to be in line with the current development, including these studies: (Assas, 2013) and (Shabib, 2004), which emphasized the importance of the practical aspect, development and keeping abreast in the preparation of student teachers. Some recent conferences emphasised this importance, including the College of Education for Humanities Conference 2023. All these reasons made the researcher choose this topic and addressing the existing issue, especially with the practicum subject which is considered the practical outcome of all parts of the university study.

We can determine the problem through the following main question: What is the effectiveness of some creativity strategies to develop the performance competence of student teachers in the subject of practical education in the Department of English Language?

2. Significance of the research:

The preparation, training and raising the teaching competencies of the student teacher is one of the components of contemporary education, and one of the prominent features of the variables of the contemporary world; because the preparation and practical professional training of the teacher aims to acquire the correct knowledge and skills related to teaching competencies, and their development according to the needs of the age, scientific development, and cognitive progress is related to practical training in the classroom for the student teacher. Due to the importance of teaching competence for the student teacher as he will become a teacher during the second semester, it was necessary to immunise him with the teaching skills that are the basis for the formation of competence from: Planning, implementation and evaluation, hence the

importance of this research in order to bring the student teacher to the highest and highest levels in terms of communicating the material to the learners and the perfection of his personality from the structure and personal characteristics leads to the degree of perfection in the student teacher (Al-Haila, 2012: 44).

3.Aims of the research:

The research aims to:

Identify the strategies that the research will work on according to the theory of creativity.

The effectiveness of some creativity strategies in developing managerial competence.

4.Hypotheses of the research

To achieve the research aims, the researcher set the following null hypotheses:

1. There is no statistically significant difference at the significance level (0.05) between the mean scores of the observation checklist for performance competence of student teachers for the control and experimental groups.

2. There is no statistically significant difference at the significance level (0.05) between the mean scores of the student teachers' performance competence observation checklist before and after the experiment for the experimental group.

5.Limits of the research:

The limitations of the research are as follows:

1. It is determined by the topics included in the first course distributed in the form of lessons according to the items of the practical education in the Department of English Language.

2. Students of the fourth stage for the academic year 2022-2023, department of English Language, Faculty of Education for Humanities/ Tikrit University

3.The time period from Wednesday 1/10/2022 to Thursday 20/1/2023.

6.Definitions of basic terms:

1.Effectiveness:

It can be defined by:

- (Ibrahim, 2009): "It is the extent to which the desired goals and skills are achieved from the proposed teaching or learning strategies that are predetermined." (Ibrahim, 2009: 753-754)

- (Haredi, 2017): "The statistically significant proportion of the change that the independent variable makes in the level of the dependent variable through repeated measurements before and after." (Haredi, 2017: 42)

-Procedural definition:

It is the amount of change brought about by some creativity strategies for student teachers and the development of their managerial competence, which can be known as a result of the observation checklist prepared by the researcher to know

the development of managerial competence.

2.**Creativity Strategies:**

It can be defined by:

- (Simon, 2000): It is a systematic, human-oriented, action-oriented methodology based on a knowledge and information base aimed at solving problems in an innovative way. (Semyon, 2000: 37)

The researcher defines it as: employing the most effective means of creativity, which is represented by the strategy of asymmetry, comprehensiveness, linkage, synthesis and the use of appropriate aids to solve the issues that prevent the ability to reach successful and appropriate solutions to the pre-planned issues and practical training on them to reach the student teacher to the perfection of creativity and full efficiency during educational situations.

Performance Competence:

It can be defined by:

- (Al-Asadi et al., 2016): A set of knowledge, skills, procedures and attitudes that the teacher needs to do his work with the least amount of cost, effort and time, without which he cannot perform his duty as required (Al-Asadi et al., 2016: 80)

-Procedural definition: It is all the activities carried out by the student teacher, whether scientific, skillful or ethical, that contribute to the development of knowledge according to the theory of creativity and the strategies that emerged from it, as measured by the observation checklist prepared by the researcher.

Chapter Two : Theoretical Background

1.Creativity Theory:

The theory of creativity is attributed to the Russian scientist Henry Ahshuller (H. Ahshuller) who started working on this theory in 1946 and was able to write fourteen books on this theory. This research include many topics in the field of innovative inventions and participated in teaching thousands of students to the methodology of this theory, its foundations and principles. This theory continued its development and progress during the past decades to achieve the transition from its engineering and technological roots to other areas to benefit from it in solving problems, especially in the educational and pedagogical field. The methodology of its strategies in enhancing student-teacher learning, and Kattit (2011) stated in his book: Creativity theory and its strategies have a primary goal of developing the ability to think creatively about the issues facing student teachers and developing the motivation of individuals to think creatively. Generating ideas and providing original alternatives in solving problems by providing them with appropriate strategies that enable them to do so (Katit, 2011: 32).

Procedural processes for teaching according to creativity strategies are:

Introduce the creative principle that is used in solving problem for the strategy used by explaining what it means by presenting an issue that was solved using this principle.

Presenting real-life problems that have been solved using the same principle, i.e. working on the principle of analogy.

Formulate the problem: Have the learner rephrase the problem in his/her own language and guide him/her to emphasize contrast and interest.

Propose appropriate solutions to the problem using the creative principle, while the student teacher guides and supervises the students and encourages them to generate different solutions.

Discuss the solutions reached by the students and reinforce their relevance by understanding the solution to the problem.

Formulate the final solution to the problem.

(Khattab, 2012: 71)

The researcher used the following strategies that are appropriate to the theory, the subject, and the stage :

Asymmetry strategy

This strategy refers to solving issues by changing the state of symmetry or consistency to asymmetry or inconsistency, but if the object or system is in a state of asymmetry or symmetry, the issue can be solved by increasing the asymmetry or inconsistency according to the principle that: Asymmetry and asymmetry characterize things (Hipele, 2000:43).

Linking strategy

It is the possibility of solving the issue by spatially or temporally linking objects and systems that perform similar or overlapping processes and functions. This strategy is different from linking similar objects or components that perform similar functions and processes so that they are adjacent to each other according to the principle that: Like attracts like (Altshuller, 2002: 27)

The strategy of generality

It is to make the system capable of performing functions or tasks or to make each part of the system capable of performing the largest number of functions. It also reduces the need for other systems according to the principle of generalization (Khattab, 2012: 13).

2.**Performance Efficiency**

The competency-based student teacher preparation is one of the most prominent features of contemporary educational innovations and the most common and popular in professional educational circles. Its interest has expanded until it became a characteristic feature of most student teacher preparation and training programmes in most developed countries (Al-Fatlawi, 2003: 65)

Performance efficiency is divided according to the tasks that are related to them into two types :

Instructional competencies: are the intellectual, educational and informational dimension represented by information, arguments, proofs, ideas, methods and techniques that would observe and show a performative behaviour on the learner, i.e. competence (Al-Asadi et al., 2016: 80).

Supporting competences: Non-instructional support competencies are:

- Observing, recording and studying students' behaviour.
- Designing, preparing, preserving and maintaining the audio-visual aids he needs to organize his students' learning.
- Administration of tests by the student teacher (Marei and Mohammed, 2009: 349).

A competent student teacher is one who possesses the basic competencies of teaching, but they differ when defining these competencies, but they agree on three of them:

Lesson planning and lesson objectives:

Competencies of lesson implementation

Competencies of evaluation: (Al-Asadi et al., 2016: 83)

Competencies of the student teacher:

Lesson Planning

Lesson planning includes all the procedures and measures taken by the student teacher to ensure the achievement of teaching objectives and the success of the educational process, so this task is considered one of the basic tasks because of its impact on other tasks. (Attia, 2009: 355) **It includes: a- Yearly planning, b- Daily lesson planning:** It is a short-term teaching plan and is described as a lesson plan that the student teacher does before teaching and aims to draw a clear picture of what he and his students can do and is one of the most important duties and responsibilities of the student teacher (Al-Sulaiti, 2008: 415-416)

Its requirements: A-knowledge of students, B-knowledge of the subject matter: information and facts, concepts and terminology, skills, values and attitudes. C-knowledge of the classroom environment: (the number of students, the size of the class, the availability of material resources and facilities, and the physical atmosphere of the classroom. (Zeitoun, 2005: 381)

- Lesson implementation

Lesson implementation skills are important and necessary skills that must be mastered by the student teacher. These skills mean all the procedures and steps that the student teacher performs during the presentation of the lesson in order to help learners grasp the concepts and information contained in the lesson, arouse their interest and increase their motivation to learn (Preparing for the lesson, varying stimuli, closing and ending the lesson). (Al-Arnousi, 2016: 68),

-Evaluation

It is the identification of the positive and negative aspects of the educational process and the diagnosis of weaknesses and deficiencies in order to take appropriate measures to remedy them (Al-Tanawi, 2013: 225)

Types of evaluation:

1- Pre-assessment aims to reveal the necessary skills that students must possess before starting the implementation of the programme.

2- Constructive (formative) evaluation is an evaluation process whose purpose is to provide the student teacher and learner with feedback in order to improve the

teaching-learning process and to know the extent of students' progress towards the desired teaching objectives.

3- Diagnostic evaluation is done at regular intervals during the application of the educational programme or during the implementation of teaching by applying tests that measure the extent of the student's acquisition of each of the teaching or behavioural objectives of the lesson.

4- The final (summative) evaluation is used at the end of the semester to assess the extent of students' achievement at the end of the study units or the end of the programme (Al-Arnousi, 2016: 68).

Chapter Three

1.Research Methodology:

This chapter includes a presentation of the research methodology, where the researcher used the descriptive method firstly because it collects data from the phenomenon under study for the purpose of testing hypotheses, or answering the study questions related to the current situation of individuals, and it is customary for the researcher in this method to use the questionnaire, interview or observation as methods of data collection. (Alshayeb, 2012: 26) This was applied through the experimental method that will show the effectiveness of the strategies used with that material and its effectiveness with students in developing their performance competence.

2.Research Procedures

a. Determining the scientific material: The scientific material was determined according to the topics of special practical education in the fourth stage of the English language department, according to what is proven within the academic description of that course, which includes a focus on successful teaching skills in planning, implementation and evaluation.

b. Determining strategies: The method and strategy of teaching is a key element of building any educational work, as it is closely related to the objectives and content.

B. Activities:

In light of this, the researcher adopted a number of activities for each of the topics of the first course according to the topics of the practical education subject in accordance with its objectives, as follows:

- **Introductory activities**: These are the practices that students assign to teachers before starting the educational lessons, and they are performed individually as homework.

- **Constructive activities**: These are the practices that student teachers perform during performance competency training.

- **Closing Activities**: These are the activities that trainees are assigned before the completion of each lesson.

C. Teaching aids: It is the set of tools, materials, and educational devices used by student teachers that help to conduct effective training with less effort, shorter time, cheaper cost in an interesting atmosphere, and a desire for better educational lessons (Mansi, 1999: 92) and these educational aids are part of the applied work of the planned programs.

D. Evaluation:

The researcher relied on three types of evaluation in the program, namely the preliminary evaluation, the formative evaluation, and the final evaluation as follows:

- Introductory evaluation: It is conducted at the beginning of the educational program and before explaining any part of the educational content.
- Formative evaluation: This is done by evaluating the performance of the student teachers through the self-evaluation of the student teachers as well as the external evaluation by the researcher.
- Final Assessment: It is done after the completion of the practical lessons and after the student teachers have reached the required level.

- Lesson Design and Implementation:

This stage includes the procedures and how to adopt creative strategies in designing lessons and tutorials, designing and implementing tutorials:

Managing lessons according to specific steps and according to the steps of each strategy.

Taking into account the availability of educational situations in each lesson by linking the lesson to the experiences of student teachers.

Organizing lessons according to creativity skills.

Providing the appropriate learning environment.

Providing enrichment resources.

Organizing the schedule of educational lessons.

The Evaluation Stage

Evaluation plays an effective role in the success of the educational process by balancing and integrating its various elements, and by modifying, adapting or correcting it in the light of data and information. (Al-Zahir, 2009: 59).

The researcher used two evaluation methods: formative evaluation and summative evaluation.

3.Constructing observation checklist:

The researcher built the observation checklist for performance efficiency in its initial form, which includes (35) paragraphs distributed among three areas, (11) paragraphs in the planning area, (13) paragraphs in the implementation area, and (11) paragraphs in the evaluation area, and three alternatives (applicable, average, and not applicable) were placed in front of each paragraph.

The validity of the observation check list:

It means that the tool is valid and has the ability to measure the objectives to be measured accurately without the result being affected by other factors, i.e. it measures what should actually be measured (Mansi, 1999: 51), and to verify its honesty and ability to achieve the objectives, the researcher verified the apparent honesty of the observation checklist.

The face validity of the observation check list:

is the experts' assessment of the extent to which the paragraphs achieve the thing to be measured, as apparent validity appears from a specialist's judgment of the contents of the observation checklist, i.e. looking at its paragraphs in terms of vocabulary, how they are worded, how clear they are, and what they seem to measure (Al-Nabhan, 2004: 61): 61), and the researcher presented the paragraphs of the observation checklist to a group of arbitrators specialized in the field of teaching methods, measurement and evaluation to know their opinions on them and the suitability of each paragraph for the allocated field, and in light of their opinions and observations on the paragraphs of the observation checklist, the arbitrators' approval of the validity of its paragraphs by more than (82%), some of the arbitrators modified a number of its paragraphs, and after the researcher made appropriate adjustments in light of the arbitrators' observations, the observation checklist became ready for application.

4.**Validity of the observation checklist:**

It means that the tool is valid and has the ability to measure the objectives to be measured accurately without the result being affected by other factors. It measures what should actually be measured (Mansi, 1999: 51), and to verify its honesty and ability to achieve the objectives, the researcher verified Face validity of the observation checklist.

5.Face validity of the observation checklist:

It is the experts' assessment of the extent to which the item achieve the thing to be measured, as apparent validity appears from a specialist's judgment of the contents of the observation checklist, i.e. looking at its items in terms, how they are worded, how clear they are, and what they seem to measure (Al-Nabhan, 2004: 61): 61).

The researcher presented the items of the observation checklist to a group of arbitrators specialized in the field of teaching methods, measurement and evaluation to know their opinions on them and the suitability of each item for the allocated field. In light of their opinions and observations on the paragraphs of the observation checklist, the arbitrators' approval of the validity of its items by more than (82%), some of the arbitrators modified a number of its items. After the researcher made appropriate adjustments in light of the arbitrators' observations, the observation checklist became ready for application .

6.Stability of the observation checklist:

Stability is one of the educational and psychological measures that the researcher should check because it is one of the necessary and essential characteristics,

especially since the calculation of stability gives an indication of the stability and homogeneity of the measurement in measuring the characteristic. The stability coefficient was calculated according to Cooper's equation for the agreement of the two observations, which states the following:

$$\text{Percentage of agreement} = \frac{\text{Number of times of agreement}}{\text{Number of times of agreement + Number of times of disagreement}} \times x\ 100$$

The percentage of agreement between the two observers reached (85%), which indicates the stability of the observation checklist.

7. Implementation of the experiment:

The researcher followed a set of procedures to implement the experiment, and these procedures were represented in the following stages:

1.Application stage:

The researcher started applying the experiment in the English language department (1/10/2022). Time of each lesson was the known two hours and a break time, and the experiment ended (15/1/2023).

The researcher applied the observation checklist during the presentation of each teacher's minute lesson in order to know the development of performance efficiency and the researcher obtained the scores that will be interpreted during the fourth chapter and indicate the effectiveness of the creative strategies that were employed in the current research in the practical education course to develop performance efficiency among student teachers in the fourth stage in the English language department at the college of Education for Humanities / Tikrit University.

Chapter Four

1.Research Results and Interpretation

This chapter deals with a presentation of the results of the application of the research tools reached through the current research, in order to answer the research questions and the statistical treatments conducted on the data collected and analysed, the researcher used the Statistical Package for the Social Sciences (SPSS) to process data statistically, and the results are presented as follows:

The first hypothesis: "There is no statistically significant difference at the significance level (0.05) between the mean scores of the observation check list of student teachers' performance efficiency for the control and experimental groups". To test this hypothesis, the researcher used a t-test for the two independent samples to determine the significance of the differences between the mean scores of the post-application of the observation checklist for student teachers, as shown in the following table:

Table (1)

The value of "t" and the standard deviation of the experimental and control groups

Domains of observation checklist	Groups.	No.	Mean	SD	T V	D.of freedom.	Level significance. 0.05
Planning	Experimental	50	29.02	1.76	5.88	98	Statistical function
	Control	50	25.88	3.33			
Implementation	Experimental	50	28.58	3.25	2.83	98	Statistical function
	Control	50	26.80	4.26			
Evaluation	Experimental	50	31.18	2.14	3.35	98	Statistical function
	Control	50	28.19	4.22			
Total		50	88.75	5.35	5.78	98	Statistical function
	Control	50	81.60	5.78			

It is obvious from the previous table that the mean score of the experimental group who were taught according to creativity strategies in the observation checklist as a whole for performance efficiency was (88.75) and the standard deviation was (5.46), while the mean score of the control group who were taught by the traditional method was (81.60) and the standard deviation was (6.83). Using the t-test for two independent samples, the calculated t-value was (5.78), which is greater than the tabulated t-value of (1.96) at a significance level of (0.05) with a degree of freedom (98).

Based on the results of the statistical analysis that showed the superiority of the experimental group over the control group, the null hypothesis was rejected and the alternative hypothesis was accepted, which states that "there is a statistically significant difference at the significance level (0.05) between the mean scores of the observation checklist of the performance efficiency of student teachers of the control and experimental groups in favour of the experimental group",

The second hypothesis: There is no statistically significant difference at the significance level (0. 05) between the mean scores of the observation checklist of performance efficiency of student teachers before and after the experiment in favour of the experimental group.

By manipulating the results between the pre-test and post-test of the observation checklist scores of the experimental group who teach according to creativity strategies, the arithmetic means of the observation checklist scores as a whole

before the experiment (64.04) and the standard deviation (6.79), while the arithmetic means of the observation checklist scores after the experiment was (88.75) and the standard deviation (5.46). Using a two-sample (t-test), the calculated t-value was found to be (21.66), which is greater than the tabulated t-value (1.96) at a significance level of (0.05) with a degree of freedom (98). As shown in Table (2)

Table (2)
The value of "t" and the standard deviation of the pre and post application of the experimental group

Note Checklist fields	Experimental Group	No.	Mean	SD	T V	D.of freedom.	Level significance. 0.05
Planning	Before	50	19.04	4.94	13.43	49	Statistical function
	After		29.02	1.76			
Implementation	Before	50	21.50	3.62	10.50	49	Statistical function
	After		28.58	3.25			
Evaluation	Before	50	21.34	2.04	15.93	49	Statistical function
	After		31.18	2.14			
Total	Before	50	62.04	5.46	21.66	49	Statistical function
	After		88.75	5.46			

It is clear from the previous table that there is a statistically significant difference in favour of the dimensional application of the observation checklist for student teachers' performance efficiency, thus rejecting the null hypothesis and accepting the alternative hypothesis that "there is a statistically significant difference at the significance level (0.05) between the mean scores of experimental group students between the pre- and post-application of the observation checklist and in favour of the post-application.

2.Calculating the effect size of creativity strategies

To demonstrate the strength of the effect of the experimental treatment and the proposed educational program on the development of student teachers' performance competence, the effect size (η2) was calculated, as shown in the following table:

Table (3)
Eta-square value (2) and effect size (d) of the observation checklist in the three domains and the checklist as a whole

Independent Variable	Dependent Variable	Fields of the checklists	Value t	Value (η^2)	Value(d)	Effect seize
The existing educational program	Students' performance competence	Planning	13.43	0.86	2.3	Large
		Implementation	10.50	0.84	2.1	Large
		Evaluation	15.93	0.80	2.5	Large
		Checklists	21.66	0.88	3.7	Large

It is clear from the previous table the magnitude of the impact of creativity strategies in developing the performance competence of student teachers, where the value of (d) in each of the levels, and in the total score of the observation checklist between (2.1, 3.7), which indicates that there is a statistically significant difference in the observation checklist and its fields, between the average scores of the pre and post applications in favour of the post application due to the impact of creativity strategies on student teachers.

3. Calculating the adjusted Black's gain ratio to verify the creativity strategies

Black's modified gain equation was used to measure the effectiveness of using creativity strategies in developing the performance competence of student teachers for the students of the experimental group, and the following table shows the results obtained.

Table No. (4)
The mean scores of the experimental group students and the adjusted gain percentage

Level	Final grade	Preliminary Averages(x)	Post Averages(y)	Adjusted gain ratio for Black(d)	Significance
Planning	33	19.04	29.02	1.35	Statistical function
Implementation	36	21.50	28.58	1.34	Statistical function
Evaluation	39	21.34	31.18	1.27	Statistical function
Total	50	62.04	88.75	1.30	Statistical function

It is clear from the previous table that:

- The adjusted gain percentage of the experimental group's performance in planning competency is (1.35), which is statistically significant, because it exceeded the ratio that Black considered a minimum threshold for accepting effectiveness, which is (1.2), which means that the use of creativity strategies

achieved the maximum effectiveness in developing the performance competence of student teachers of the experimental group.

- The ratio of the adjusted gain of the experimental group students' performance in implementation efficiency is (1.34), which is statistically function, because it exceeds the ratio that Black considered as the minimum acceptance of effectiveness (1.2), which means that the use of creativity strategies achieved the maximum effectiveness in developing the performance efficiency of student teachers of the experimental group students.
- The mean of the adjusted gain of the performance of the experimental group students in the evaluation competence is (1.27), which is statistically function, because it exceeded the ratio that Black considered a minimum threshold for accepting effectiveness (1.2), which means that the use of creativity strategies achieved maximum effectiveness in developing the performance competence of student teachers of the experimental group students.
- The adjusted gain ratio of the experimental group students' performance on the observation checklist as a whole is (1.30), which is statistically significant, because it exceeds the ratio that Black considered as the minimum threshold for accepting effectiveness (1.2), which means that the use of creativity strategies achieved the maximum effectiveness in developing the performance competence of student teachers of the experimental group students.

4.General comments on the results:

It is clear from the results that the performance of student teachers in the post-application is higher than the pre-application and this may be due to the following reasons:

1. The cognitive performance aspects of student teachers in the pre-application were associated with a clear decrease due to their lack of knowledge about teaching skills.
2. The emergence of a significant increase in the performative aspects in the post-application due to the application of what they learnt in the form of activities, questions and exchange of experiences in real teaching situations.
3. Teaching in these strategies and in light of the continuous evaluation of the performance aspects associated with them that they have experienced has contributed to raise their level of performative thinking to higher levels.

5.Recommendations:

1- Employing everything related to creativity in teaching in a way that benefits the student.
2- Practicing and using creativity strategies with students due to the enrichment and development in the mindset and behaviour of students.
3--Teaching creative strategies, especially with the types of thinking, increases students' learning of the compatibility of creativity and thinking.

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