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CREATIVE THINKING DEVELOPMENT FOR PRIMARY STUDENTS

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ABSTRACT

Teaching to develop creative thinking for students is an important task of education and it should be started at the primary level. In many primary schools, however, this task was not paid much attention. This paper describes a practical study in a number of primary schools in Vietnam to analyze the current status and causes in teaching creative thinking development for primary students.

Keywords*:* *High Order Thinking (HOT), Creative Thinking (CT), Primary students(PS) Teaching Creative Thinking (TCT).*

1. CREATIVE THINKING OF PRIMARY STUDENTS

While explaining creative thinking at different dimensions, the authors of creative thinking have argued that creative thinking is an attribute and a special intellectual quality of human. The nature of creativity is searching for new, unique things which have social values. According to Guilford J.P., Torrance P. E., creative thinking is characterized by major factors such as flexibility, fluency, and originality. Whereas flexibility has the characteristics of: non–stereotyped thinking; having ability to get rid of the constraining influence of the existing experiences, methodologies and thinking methods. Fluency is expressed in the characteristics of: a multidimensional and comprehensive view to one problem; and the ability to find many solutions in many different angles and situations. Originality is characterized by the following possibilities: the ability to find new associations and combinations; the ability to find out strange solutions. In addition, creative thinking is also characterized by a number of other factors, such as: elaboration, problem sensibility (Loowenfeld (1962), etc. The above characteristics of creative thinking are unseparated from one another, but are closely interrelated, complementary to each other. Of those, originality is thought to be the most important in creative expression and problem sensitivity is associated with the mechanism of creative appearance. Flexibility, fluency are the basis for achieving originality, problem sensitivity, elaboration and perfection.

From the characteristics of each element of creative thinking, we can see the flexibility, fluency and originality of creative thinking in the primary students illustrated in learning such as: coordination, general combination of manipulation of thinking, methods of reasoning; Easy transition from one solution to another; Timely adjustment of thinking direction if obstacles occur; un-stereotyped thinking , not mechanically applying existing knowledge or experience into circumstances that have changed elements; Recognizing new problems in familiar conditions, perceiving new features of familiar objects (flexibility); having ability to view the subjecreative thinking in different respects; having a multi-dimensional, comprehensive view of a problem; having ability to find multiple solutions to a problem, screening solutions to choose the optimal solution (fluency); having ability to find new associations, combinations and strange solutions and having ability to find connections in unrelated external events is (originality).

2. A PRACTICAL RESEARCH ON TEACHING CREATIVE THINKING DEVELOPMENT FOR STUDENTS IN THEIR LAST GRADES OF PRIMARY EDUCATION

In order to view the current status of creatvie thinking development education for primary education's last grades students, we conducted a practical study at 6 primary schools in Thai Binh, Hanoi and Nam Dinh provinces in Vietnam with the participation of 145 primary teachers. Our research is based on the following research methods and tools:

Questionnaires:
Class observation
Teachers and students interview

Below is a summary of the data and results obtained from investigations and surveys.

- ***Teachers' awareness and teaching strategies***

Regarding the question: "How do teachers regularly teach creative thinking (CT) for students by teaching subjects?" We offer some

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suggestions such as: by asking students to solve a variety of exercises; by stimulating student's activeness in the learning process; by other means (Please specify) ... The purpose of our only two general suggestions and not the core measures in training of creative thinking for students as above is to encourage teachers to think their own ways. The obtained results are that 92% teachers said that they teach creative thinking by asking students to solve a variety of exercises and 87% by stimulating student motivation during the learning process (many teachers checked both suggestions above). Some teachers have added a number of ways such as organizing math examinations, organizing learning games, etc. (about 17% of the 154 teachers responded the questionnaire), some teachers did not tick on any suggestion. This proves the facreative thinking that the development of creative thinking for students in teachers' teaching is very monotonous, limited and does not have a clear view, way and measures.

Regarding the question: "How do teachers develop creative thinking for each group of students (good, satisfactory, average...)?" We received comments such as "mainly assigning pretty good students to do difficult problems and answering difficult questions and exercises that have many solutions" (Ms. Nga, teacher from Y Yen district, Nam Dinh province); "We know that every student can be creative, although the level of creativity is different, but because of the time constraint, we mainly assign difficult and creative problems or questions for group of good and satisfactory students"(Mr. Hao, teacher from Dong Hoang commune, Dong Hung district, Thai Binh province); Thus, we can see that the average and below average students are not facilitated with conditions to promote their creative thinking abilities in their learning process.

Next, in order to explore whether teachers have focused to the development of some creative thinking elements such as flexibility, originality, fluency and criticality for students, we raised the question: "How do teachers perform the following activities during teaching process?" We put out 16 activities of teachers during teaching hours aimed to develop some elements of creative thinking for students, the results obtained are as follows:

The level of teachers' implementation of activities during teaching hours to develop some elements of creative thinking (CT) for students

NO.	ACTIVITY	Nam Dinh	Thai Binh	Ha Noi	Overall results
1	Instrucreative thinking students to analyze the problem in different directions. Train students know how to express sentences, topics, problems, solutions, ... in many ways	0.44	0.42	0.40	0.43
2	Stimulate creative imagination for students by using image-rich question, speech with suggestion and association effecreative thinking to re-express the abstracreative thinking problem; Use drawings, patterns, line diagrams to sketch or summarize topics, problems.	0.44	0.46	0.44	0.45
3	Always help students to recognize that the same content can be expressed in different forms and vice versa.	0.61	0.65	0.65	0.64
4	Train the student to constantly respond to the rationality of the answer or the process of reasoning, problem solving, problem reversal and having critical view of the problem.	0.40	0.41	0.38	0.40
5	Teach students how to move or coordinate, generally combine manipulation of thinking and thinking methods.	0.58	0.69	0.58	0.62
6	Train students to reset the problem, map the problem to bring the problem to the familiar form.	0.36	0.44	0.33	0.38
7	Regarding difficult exercises and problems that have elements implied in indirecreative thinking form, teach students to separate problems, objects into smaller objects, problems to solve step by step	0.49	0.42	0.34	0.44
8	Teach students reasoning skills, verbal reasoning skill (inductive or interpreting: from individual to specific, general to particular)	0.71	0.72	0.77	0.73
9	Teach students how to plan, outline, implement program for each specific issue (by process, implementation steps), and express the accuracy, completeness of assignment such as: if needed have a summary and clear answer for each solution step; Have proper calculation and answer; be able to convert unit of measure if needed	0.47	0.50	0.48	0.48
10	Practice students' habits of always finding many solutions to a problem and always finding the shortest and the most creative solution.	0.42	0.46	0.41	0.43
11	Make habits for student: Rather than solving problems in a long way, with many small steps, student can think right away that there may be a shorter, brighter alternative solution.	0.39	0.45	0.41	0.41
12	Train students not to accept a solution familiar or unique, always stimulate student to	0.47	0.44	0.45	0.46

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	explore and propose different solutions.				
13	Teach students how to systematize and use the knowledge, skills and techniques in the process of teaching students to practice, review a certain topic of knowledge.	0.41	0.48	0.33	0.41
14	Train the students know how to combine the calculation steps in the solution; Find many solutions, point out the best solution; From the problem to deduce the diagram, summary, set to other math problem; Solving by indirecreative thinking deductions, sharp judgments, and rigorous, logical arguments.	0.51	0.51	0.44	0.50
15	Teach students how to use sentence words that are unique, creative, and having high expression value; Know how to use rhetorical methods such as comparing, impersonal, alliteration, inversion in writing sentences, paragraphs, and articles according to the topic; Find many descriptive and expressive words and at the same time know how to use those words into the sentences, paragraphs to make them unique and special...	0.58	0.55	0.51	0.56

(Ranged from 0 ÷ 0.20: Very regularly; from 0.21 to 0.4: Regularly; From 0.41 to 0.60: Sometimes ; from 0.61 to 0.80: Seldom ; from 0.81 to 1: Never)

- ***Creative thinking expression of student during the learning process***

For students in grades 4 & 5, we use questionnaires to find out learning activities of students to create a "thinking class" and at the same time to learn about CT, especially the creative thinking level of student participating in learning activities. In the questions raised, there are questions aimed to explore whether some of the characteristics of creative thinking and to what degree shown in their activities of solving specific problems.

Regarding the question: How do students perform the following activities in the classroom? The results are as below:

Level of some learning activities of students

NO.	ACTIVITIES	Nam Dinh	Thai Binh	Hà Noi	Overall results
1	actively involve in learning activities.	0.66	0.55	0.57	0.59
2	Give different answers to a problem.	0.52	0.63	0.58	0.58
3	Give a lot of reasons for the answers.	0.65	0.73	0.55	0.64
4	Think about their own thinking process.	0.65	0.52	0.75	0.65
5	Quickly respond to teacher's question or problem raised	0.48	0.56	0.51	0.52
6	Listen to others' responses.	0.56	0.52	0.62	0.57
7	Gives in-depth questions about the topic.	0.75	0.67	0.77	0.73
8	Be obedient, sit neatly and listen to the teacher lecture.	0.24	0.31	0.36	0.31
9	Persistently pursue the task although it may be difficult.	0.68	0.65	0.59	0.64

(From 0 ÷ 0.25: Very regularly; from 0.26 to 0.5: Regularly; from 0.51 to 0.75: Irregularly; from 0.76 to 1: Never)
As a result, it can be seen that the level of performing some activities by students fluctuates the most at "irregular level"

Regarding the question: What following activities do students perform during school hours? The results are as follows:

The level of student's some learning activities represent creative thinking

NO.	ACTIVITIES	Nam Dinh	Thai Binh	Ha Noi	Overall results
1	Curious, inquisitive, questioning.	0.56	0.65	0.62	0.61
2	Find out a good or unique solution to the problem, exercises or problems.	0.76	0.70	0.68	0.71

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3	Find out many solutions to the same learning problem.	0.54	0.53	0.62	0.56
4	Find out a quick, accurate and sharp answer to a teacher's question or request.	0.61	0.66	0.58	0.62
5	Know how to reason, discover, solve problems, study and self-study.	0.52	0.67	0.53	0.57
6	Give reasonable, sharp, and logical answers.	0.59	0.58	0.53	0.56
7	Ask in-depth questions about the topic being addressed.	0.74	0.77	0.68	0.73

(From 0 ÷ 0.25: A great number; from 0.26 to 0.5: Many; From 0.51 to 0.75: Not many; from 0.76 to 1: Never)

This question aims to learn some characteristics of student's creative thinking expressed through learning activities. In our opinion, the above activities show the level of more or less creative thinking elements in primary students. However, according to the responses of students, creative activities of students are very limited, there are even some activities that majority of students have never conducted, such as "Finding a good and unique way to solve questions, exercises or problems (originality) " and most students in Nam Dinh province have never done the activity (68%); Regarding the activity of "Asking good questions about the topic being addressed (fluency)", most Thai Binh students (69%) have never done.

To learn about some creative thinking elements of students through specific subject, we raised the question of creative thinking activities of students through literature subject**: "Do you perform the following activities when doing literature exercise?** The results are as follows:

Level of some activities of students in studying of a specific subjecreative thinking division

NO	ACTIVITIES	Nam Dinh	Thai Binh	Ha Noi	Overall results
1	Detailing the ideas in a rich and varied way.	0.55	0.53	0.58	0.56
2	Using beautiful, image-rich, novel words combining the details, images in a flexible way.	0.68	0.59	0.72	0.66
3	Arranging logical ideas from teacher suggestions.	0.46	0.51	0.58	0.51
4	The writing has little or no similarity to that of teacher's suggestion	0.57	0.63	0.71	0.64

(From 0 ÷ 0.25: A great many; from 0.26 to 0.50: Many; from 0.51 to 0.75: Not many; from 0.76 to 1: Never)

According to the results table, it can be seen that there are that much creative thinking activities of students shown in specific subjects. For example, regarding the activity "Detailing ideas in a rich and varied way (fluency, originality).", "Arranging logical ideas from teachers' suggestions (fluency).", performance level of most students in all three provinces is not much. Regarding the remaining two activities, the number of students involve even less. So with these three mentioned questions, it is possible to perceive that the level of participation in learning activities aimed to turn classroom into a "thinking class" and creative thinking activity of the students is very limited.

Thus, through the level of selection and performance of activities set by us, generally the level of expression of some CREATIVE THINKING elements in students is limited. This is mainly due to the way teachers teach.

- ***Discussion***

By analyzing the survey results, we believe that the development of creative thinking for current students in primary schools has the following limitations:

On the side as teacher:

❖ *Firstly, the understanding of teachers and students about teaching and learning creative thinking is ambiguous and general.* Although teachers somehow aware of creative thinking importance and the need to form and develop creative thinking for students as well as are capable to train to develop creative thinking for students but most teachers have not had specific measures to develop creative thinking for students. They explain the creative thinking development for students in general and have no clear view what needed to be trained and developed.

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- *Secondly, there is not a pedagogical environment suitable for teaching thinking in general and for creative thinking development for students in particular*. It can be said that most teachers have not created a "safe" and "friendly" classroom environment where every student is treated with respect, fairness ... and a competitive and open classy atmosphere to encourage and motivate student's thinking. Indeed, although teachers have recognized that creative thinking development for students is very important, they do not actually do so in their teaching process. Many teachers said that they only need their students to find out the correcreative thinking answer and this met the requirements, not requiring their explanation or argument for other ways. In fact, if students have different opinions, views and ways of doing things, teachers are also the ones who comment, evaluate or can only give the right or wrong judgment to come to the conclusion. Only when students have the same idea, conclusion as teacher they are then acknowledged by teachers.
- *Third, teachers have not paid much attention to creative thinking development, especially to the flexibility, fluency and originality - the three most basic creative thinking elements for students*. Specifically, when we observe some lessons taught by teachers, we have not seen teachers mention about the problem of developing creative thinking for students. During the lesson, there are contents that can be exploited to develop the three most basic creative thinking elements for students but are ignored by teachers. In addition, teachers have not created conditions, encouraged or organized for students to flexibly apply manipulation of thinking and methods of reasoning in solving learning problems, not creating student's habits of non-stereotyping thinking, not mechanically applying the existing knowledge, experience and skills into new conditions and circumstances in which factors have changed; not training student the ability to find out many ways to solve a problem and always finding the shortest way and from many angles and various situations, from which screening solutions to choose an optimal solution, or discover or explain a new problem based on the lesson learned and to find a solution to good and unique problem. Also, as a habit, most teachers do not allocate enough time for students to evaluate all their solutions, from which to choose the right and good way and clearly understand the value of good solution so that student perceive what is wrong.
- *Fourthly, in teaching process, teachers have not paid much attention to creative thinking development for many groups of students (good, satisfactory, average...)*. Many teachers have misconceptions that creativity, including creative thinking is a natural ability gifted to only a few people, so applied to students, only a few students are creative. Students who have learn well they are surely good ones regardless of teaching methods they receive and vice versa. Therefore, they do not pay attention to how to develop creative thinking for all students. Not only that, even the teachers who conceived that creative potential exists in every normal students, they do not actually pay much attention to develop creative thinking for the average and below average students. In fact, in every lesson, if teachers do pay attention to CT, then only good group of students are focused, while the average students are not involved or completely ignored and the facreative thinking is that this average student group occupies the class majority.

On the side as student:

The collected data shows the level of performance in student's some activities such as: actively involve in learning activities; persistently follow task, ... fluctuate the most at the "occasional/irregular" level. This proves the facreative thinking that students haven't had learning activities that contribute to the "thinking class". In addition, there are inadequate activities that express creative thinking of students and there are even activities that most students have never conducted, such as in activity "Finding a good and unique solution to the questions, exercises or problems", most students in Nam Dinh have never done (68%); in activity "Asking in-depth questions about the topic being addressed (fluency)", most Thai Binh students (69%) have never done. In addition, there is not much and clear activities, behavior expressing creative thinking in student's learning: students are not flexible in solving learning problems. Specifically: Students do not know how to discover or are not capable of explaining new problems based on the knowledge of the lesson. Students do not know and do not have the habit of finding many ways to solve a problem and mechanically apply skills, knowledge and solution methods.

For example, when comparing two or more fractions, students always reduce to the least common denominator and then compare (mechanically apply the rules of comparison) without using the properties of fractions to compare (that may not be necessary to reduce to the least common denominator…,; When executing the solution, students mainly follow the sequence of calculation steps, not knowing

how to merge the calculation steps, not combining calculation skills and problem inference; not knowing how to apply the properties of calculations, typical solution methods to solve in a creative way; Mainly writing sentences, writing paragraphs in the form and do not know how to combine (inversion, adding sub-components, using expressive and unique words..) to make sentences, writing more lively; Students have not been able to combine details, images in a flexible and transformed manner (sentences are monotonous, mainly follow the form available); not able to find image-rich, novel words, not combining the details and images in a flexible way in sentences and paragraphs to make them unique and exclusive; not knowing how to apply learned knowledge to flexibly and creatively handle practical situations; not knowing how to divide problems (exercises, questions) into small components to solve each part easily..; This is the consequence of teachers not paying attention to develop creative thinking for students in their teaching process.

3. CONCLUSIONS

It can be said that in general the development of creative thinking for students in current teaching at primary schools has not been paid enough attention. This situation is caused by many causes, in which the main causes are due to the teacher's unclear, consistent and open conception of creative thinking development for students. In addition, many teachers do not understand properly about the nature and characteristics of creative thinking in primary students as well as have no effective measures to develop creative thinking education for student.

In addition, many teachers are not aware of the role and importance of creative thinking and creative thinking development for students right from primary education level. At the same time, the influence of traditional education focusing heavily on knowledge transfer leads to passive teaching organization, failing to promote positive learning as well as creative thinking potential of students. In summary, based on the survey results, we believe that although there are various causes leading to the limited development of creative thinking for primary students, the main cause is that teachers haven't had appropriate and effective measures.

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