International Journal of Academic Pedagogical Research (IJAPR)
ISSN: 2643-9603
Vol. 4, Issue 7, July – 2020, Pages: 71-75

Improving Students` Critical Thinking Skills through Project Based Activities

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Abstract: *The given article aims at scrutinizing the level of students` critical thinking skills and enhancing their thinking abilities as well through project based activities. The purpose of this research is to teach students how to develop their critical thinking skills based activities with given integral strategies. Therefore, some various methods are given in this article to broaden students` worldview and to find solutions to problems for thinking critically. The research analyzes and determines the ability of students for problem-solving instruments, learns students` interest and enthusiasm to master noval techniques for increasing critical thinking skills and mulls over previous studies about the importance of critical thinking strategies for creating or finding new inventions. The main reason is that, critical thinking skills are crucial in this era. In addition, it provides implementations of critical thinking instruments based some kind of beneficial activities which help students to enhance the level of their critical thinking skills effectively. Thus, critical thinking can lead students to make the right decision and increase the capacity for cognition that`s why critical thinking skills are essential in every fields of science in order to improve their knowledge.*

Keywords: critical thinking, project based activities, learning methods, instructional technique.

INTRODUCTION

We know that nowadays the level of people`s thinking ability is progressing significantly. So, teaching methods of critical thinking skills are rising adequately and critical thinking is believed important because it allows students to think carefully, find easier solutions to problems and also deliberate logically. According to Romanowski and Nasser (2012) statement that critical thinking ability can be learnt when a student is learning so such thinking ability can be implemented appropriately and the students be better thinkers. Besides that, critical thinking instruments are pivotal for first-year students in universities because they are not cognizant of scientific, logical and financial issues they encounter. Critical thinking skills in university study are essential because they allow students " to deal effectively with social, scientific, and practical problems" (Shakirova, 2007). Therefore, educators should teach freshman students with critical thinking skills based efficacious activities. Students are engaged with beneficial strategies such as debating clubs or disputable dialogues. In addition, critical thinking is indispensable in daily lifetime which helps to cope with family problems as well. Students must be able to think critically when they make important decisions. Thus, teachers ought to provide students with integral methods in daily lessons and learners should master these absorbing techniques with great gusto. Furthermore, competitive and debatable instruments increase students` interest, zealot and outlook into the bargain. If teachers utilize appropriate instructional methods and curriculum materials, students will improve their critical thinking skills (McMillan, 1987). Everyone`s scope of thinking and the level of knowledge is totally different from each other and they solve problems in various implements. The ability to deal with problems correctly also depends on how well critical thinking is developed. Numerous researches have indicated that critical thinking skills play a pivotal role for solving problems effectively.

RESEARCH METHODS

Design of the experiment.

There are some integral techniques for enhancing students` critical thinking abilities in study rooms.

Method 1: Teachers gave a book which was full of debating data in order to analyze the critical thinking skills of student. The development of this model includes effective tests based on a given book, reading and making plans, important notes and necessary words, quotes given in the book. Students ought to read recommended book the reason why, that book helped solve any kind of problems. Before reading a given book, educators must teach how to read a book, what parts to focus on and how to find indispensable techniques to address problems in the book. In this method, students are required to cover solutions to each situations and states in the book through critical thinking. Consequently, students have to think deeper to find solution for each situation, and then they gradually begin to train their brains to think critically via instructional methodologies. As McMahon (2009) clarified that any student who was completely involved in strengthening critical thinking performed through teaching or digital methods as a doorway to acquire critical thinking, appeared to obtain a profound comprehension of aspect and implementation. Students` knowledge was evaluated through the following assessment table.

N_	Grades table	Result	Characterization
1	"5"	Excellent	Students explained the data fully and in detail, expressed the task with real-life examples and were able to express their own views.
2	"4"	Good	Students represented the data and linked them to practice
3	"3"	Enough	Students did not read the task fully, but only outlined its main points.

Method 2: The next method is the two-person dialogue method. In this approach, two students spoke about debatable conversation on different topics and the third student who was a listener had to give various solutions to the mentioned situations without deviating from the topic. This model is also very effective and helps students to find solutions to the vexed states quickly and easily when they come across to any situations. There were 20 students in a group and they had a total of ten dialogues. In this instructional technique, each student took part in both two states, both debating and problem-solving. Through this method, the ability of each student to think critically, how to quickly and effectively find solutions to controversial situations was evaluated by experienced educators. Necessary conclusions and integral analyzes were made at the end of the lesson and students` knowledge was assessed through their academic performance.

Directly experiencing student weaknesses and having the opportunity to discuss effective practices for addressing the weaknesses are two essential elements that underlie the effective use of assessment for the improvement of student learning (Wolcott and Gray, 2003).

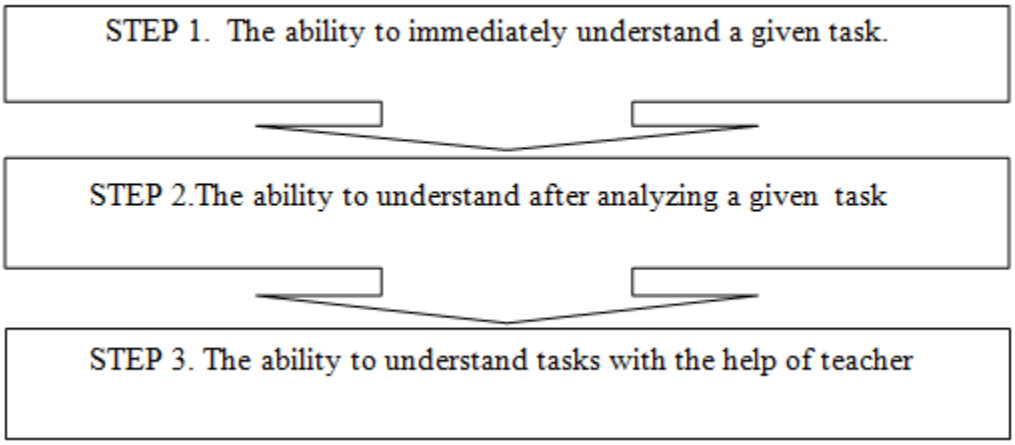
Method 3: This next method is one of the crucial methods which aims at enhancing students` critical thinking skills as well as taking into consideration metacognition. Teacher prepared a special discussion-rich situation for students to express critical thinking and distributed the situation which was written on paper to each student. During the lesson, students had to find an effective and a beneficial solution to this contentious state using their academic knowledge and critically describe the situation presented on paper without overlooking the most important details. The educator evaluated solutions that students have expressed and identified the best of the other results. Consequently, students tend to do better assigned tasks and read books that enhance critical thinking abilities. Next time, they will try to do the debates best. Costa and Kallick (2009) expressed that working together in small groups, sharing ideas, showing each other respect, and especially contents related to the learners` background are crucial to enhance critical thinking. Thus, the more this model is practiced among students, the more effective and useful the result will be. And students also read more discussion-rich books and try to ponder more critically. Three kinds of method instruments were assessed in both test and non-test forms. The percentage of students` grades increased during the practice. As Ada, Elizabeth, Michele, Barry and Kevin (2016) noted that " assessment of critical thinking are important at the institution and department level. Valid and appropriate assessment tools are an essential element in any effort to evaluate the effectiveness of programs in higher education and to evaluate the potential benefits of new approaches that aim to improve student learnings".

RESULTS

The main purpose of this study is to enhance the development of critical thinking of students through project-based learning activities. As mentioned earlier, the scope and level of students` thinking vary from each other and these things depend on how well they master the subject. It is clear from the practice that the development of students` critical thinking skills are inextricably linked to the teaching methodologies of educators. We scrutinized and analyzed these techniques from the results obtained during the lesson. The result used in the critique and incentive method in the evaluation of the given tasks was applied in practice. First of all, teacher divided students into two groups and gave both groups the same task to increase their critical thinking. Educator evaluated students` tasks in two different ways. For instance, pedagogue praised assignments of one group and supported that they performed well. However, teacher criticized tasks of the second group, pointing out each of their drawback sides and evaluated that group with a low result. If we determined the next assignments of students who were assessed low, they diligently studied the given tasks, checked mistakes on the basis of books , and did it on the basis of discussion in order to do away with drawbacks and avoid making mistakes of the next tasks. According to Aceng, Haryani and Wardani (2015) pointed out that " Development is done for lesson plan is the requirement for students to implement project-based activities by integrating character that leads to an increase in critical thinking skills. The integrated character that is the character of hard work , creativity, curiosity, respect and love reading achievement". However, the students, who were encouraged, completed given tasks with all the knowledge they had, without research but the result was not as effective and critical as the second group. Moreover, instructional methods were also conducted and evaluating findings indicated that learning activities, teaching materials and analyzing models were considered as a pivotal key in fostering students` critical thinking skills as well as enhancement of academic performance. Halpern (1993) stated

that "better critical thinking can be improved with appropriate instruction". That is to say, educators should provide students with appropriate instructional implements in order to enhance abilities of thinking and metacognition. The result in the encouragement and critical method were also evaluated according to the ability whish students were able to find the right solution to the problem.

CRITICAL THINKING SKILLS



And this method must be done in more practice. Through practice, students have experiences in problem-solving, analyzing and scrutinizing information, making appropriate important decisions, negotiating arrangements and accepting agreements. As Halpern (1998) noted that practice is important to the development of thinking skills. In addition, critical thinking is a phenomenon that does not develop quickly, it develops based on the results of many practices.

DISCUSSION

Critical thinking is a skill that it shows how well students can think critically. Numerous past researchers agree that students can be connected in deeper thinking when uniting online collaborative learning and interaction (Dziuban et al., 2011; Snodgrass. 2011; Swart. 2017). Moreover, the impact of the study room environment on critical thinking is essential. As these students like to be in an environment that makes learning interesting (Sweeney, 2006). It is clear that critical thinking is really important for classroom, workplace and especially for daily life (Ornstein, Pajak & Ornstein, 2011, p. 89). Mutual respect among students and supporting each other also further help to increase free and critical thinking. The main reason is that, students should be able to express their opinions, ideas as well as suggestions in order to find solutions to the problems. P. Thaiposri and Wannapiroon (2015) stated that " Teachers and students share opinions between groups. They ask questions and offer suggestions to facilitate understanding using comment functions incorporated in web tools. This activity helps to determine the credibility of sources and observations.

When it comes to the result, it shows that we analyzed students` critical thinking skills in three groups. The students in the first group were able to perceive the given tasks more quickly and did the assignments faster than other students. Their evaluation results were also higher than others. It shows that the students ` critical thinking level in the first group was mostly in a high position. Students had good critical thinking in answering questions, addressing problems and accepting agreements as well. The second group of students understood the topic, but not as immediately and easily as the first group when they comprehend after thoroughly analyzing the given tasks. The students in the second group had enough critical thinking because they tried to complete the given tasks correctly but the ability to understand is slower than the first group. However, two or three students` results were low and they could catch the tasks with the help of educator. They also had poor critical thinking in comprehending topics and finding solutions to problems. Curto and Bayer (2005) which states that critical thinking can be developed to enrich the experience of student meaningful. According to Rochmahwati (2015) pointed out that " the lecturer must encourage the students to be reflective, to wait and think, instead off making judgements or accepting the first thought that occurs in their mind or promptly accepting whatever is manifested in the media" it is clear that students` ability to think , to find quick solutions to problems, to understand the topic correctly are developed in different stages. Besides that, criticism influence on students differently, for instance, some of them understand the criticism accurately and try to correct their mistakes and drawback sides, while others are depressed by the criticism made and their zealot as well as aspiration for studying and research disappear. Therefore, pedagogue should know how to encourage students motivationally. As Rochmahwate (2015) conveyed that " Criticalc

thinking is one of the thinking skills that should be considered in designing and improving language curriculum because the world we live in is getting more complex to understand, and how we process information has become more important than specific details". Critical thinking is not easy, students ought to know it perfectly, to be able to see their shortcomings for knowing critical thinking. Additionally, critical thinking changes their worldview and again encourages students to be meticulous. Critical thinking ability is more cumbersome than expressing one`s own opinion, all of students can state simple thought, but cases in critical thinking are carefully scrutinized and every relevant piece of informationis conveyed with attention. Beyer (1985) noted that critical thinking is the ability to collect, evaluate and make use of information effectively and appropriately.

The students ` grading system was also evaluated based on how perfect and accurate their answers were (Table 1)

The student who was able to explain the information fully and in detail, express the task with real-life examples, convey his/ her own opinion was highly assessed. Their critical thinking skills were excellent. Students who represented the data and them to practice were well evaluated, that is to say, they had good critical thinking. Students who did not complete the assigned task, but only outlined its main points were evaluated low. Grades are based on the actions and aspirations of students at all times. Furthermore, the right direction and instructional motivation given by teachers also foster students` critical thinking. Altun et al. (2009) states that the students are highly motivated, feel actively involved in their own learning, and generate solutions (work or products) and an appropriate quality in the learning topics.

CONCLUSION

Several studies have shown that enhancing students` critical thinking is important in acquiring noval results. Everyone encounter a plethora of opposition, problems as well as criticism throughout their lives and fighting such factors makes people stronger. The survey indicated that project-based activities are the best teaching strategy to enhance students` critical thinking abilities. Critical thinking is such a factor that it is crucial basis for the development of great discoveries, scientific research and the enhancement of progress. Thus, critical thinking needs to be more promoted among students in order to develop students` view. As a deduction, it become clear that criticism is also vital in acquiring knowledge and expressing independent opinions and, what`s more, criticism is the foundation of the future. In conclusion, critical thinking also has a pivotal role in modern civilization, only to be utilized appropriately.

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