CRITICAL THINKING IN EDUCATION: THE CASE IN PALESTINE

Fatma Qablan
Institute of Educational Sciences
NecmettinErbakan University
Turkey

Assoc. Prof. Dr. Mehmet Şahin
Ahmet Keleşoğlu Faculty of Education
NecmettinErbakan University
Turkey

Haslinda Hashim
Centre for Modern L. and Human Sciences
Universiti Malaysia Pahang
Malaysia

ABSTRACT

Knowledge and skills are the central themes of an education system. Nowadays, the main focus in on skills generally and on thinking skills specifically. The principle adapted currently is that education is not just transferring knowledge to learners or students but rather it is a process that is also directly related with the cognitive, emotional and artistic aspects. Cognition refers to reasoning and thinking skills in education. In this context, thinking skills and specifically critical thinking is to be considered in curriculum development process. The critical thinking helps the learners to express their opinions on the scientific or social issues, making decisions, constructing plans and solving their problems. This study aims to determine the impact of utilizing critical thinking skills in education. In fact, educators believe that critical thinking is important because criticism leads to creativity, criticism and creativity. The results of this process will help problem solving, innovation and development. But the challenge here is how learners can have the required critical thinking skills. The role of the teacher in developing the skills of critical thinking is another challenge. The data for this qualitative research was collected with the help of face to face interview, focus group discussion with participation of 8 teachers of Science and Religion for the intermediate stage in Palestine during 2018-2019. The data were analyzed and the findings were given under subtitles.

Keywords: Education, problem solving, thinking, critical thinking, critical thinking skills.

INTRODUCTION

Given the tremendous progress in scientific and technological knowledge and the inability of students today to store all information or data given to them, contemporary education always seeks to teach the individual how to think, so that they possess the ability of continuous self-learning as well as to cope with informational and social changes**.**

Thinking is defined as a series of mental activities performed by the brain when exposed to a stimulant received by one or more of the five senses: sight, touch, hearing, smell, taste. In the broader sense, Thinking is defined as a mental activity carried out by the individual, where he studies the dimensions of the problem, analyzes and understands the relationship between them, then studies the information or possibilities available in order to be organized and understood on the one hand, the goal which he aspires to achieve on the other hand. This attempt is repeated until the individual realizes this relationship, crosses the obstacle, reaches the goal and resolves the problem **.**

Thinking is a purposeful behaviour that does not occur from nothing. It develops and becomes more complicated as the individual grows and his experience accumulates. The importance lies in the self-interest of the individual itself, where the thinking helps the individual to effectively get involved in fields of this age to which success was associated with excellence in the ability to think well. Another importance lies in its benefit in the social sphere by providing members of the community with good thinking skills which makes them able to look deeply into the social problems that their society suffers from as well as their ability to make good or sound judgments and solve their social problems well. Thinking is also important for the individual's mental health. The ability to think well helps the individual to rest. Good thinkers have the ability to adapt to events and variables around them more than people who do not do so. Mastery or perfection of thinking supplies the individual with the ability to analyze, interpret, evaluate and criticize; Thinking protects the individual from being rapidly influenced by the others' ideas or opinions. It aids people to live in better and psychologically healthier circumstances than those who do not master it**.**

Thinking types
- *Inductive Thinking:* the transition from partial issues to total issues**.**
- *Deductive Thinking:* a standard logical reasoning that depends on the transition from macro issues to partial issues**.**

- *Relative Thinking:* this is used by learners in order to know the underlying relationships between molecules given to solve a mathematical question, for example**.**
- *Intuitive Thinking:* a speculative thinking to reach a solution without knowing the cause**.**
- *Critical thinking:* Critical thinking is not inherent in man. It is a skill that needs to be learned, practiced and trained, and every one of us is capable of doing it according to the level of his mental, sensory and abstract abilities. Critical thinking requires the use of diverse thinking skills and strategies with a high degree of competence **(**Afaneh 1998**).**

Critical thinking is a higher order thinking, which means evaluating the arguments, and the ability to self-organize in order to do the skills of assessment, analysis and conclusion. Jibril and Jawabreh defined critical thinking as a thinking that examines, researches, and links all characteristics and features of a situation or problem. Thinking also includes the collection, organization, recall, analysis of information and the ability to produce insight through data (Jibril and Jawabreh 2003). In essence, critical thinking requires you to use your ability to reason. It is about being an active learner rather than a passive recipient of information.

Critical Thinking Criteria

This means the criteria which determine the ability of the individual to think critically, and they include:

- *Clarity:* one of the most important of critical thinking criteria and considered as the main gate to the other criteria. If terms or sentences are not clear, we will not be able to understand it; or to know the purposes of the speaker or student, therefore, we will not be capable to judge them in any way.
- *Precision:* Precision in thinking means giving the topic studied its fair share of being addressed to, and expressed in a balanced and well throughout the way.
- *Relevance:* This means the extent of the relationship between the question or the thesis statement of the discussion or problem. Moreover, in order to distinguish between the elements associated with the problem and the elements that are not related to it, the nature of the problem or the topic must be determined with precision.
- *Depth:* The intellectual processing of the problem or the topic often lacks the desired depth, which commensurate with the complexity of the problem or issue.
- *Breadth:* Critical thinking is described as broad or inclusive; this means that all aspects of the problem or issue are taken into consideration.
- *Logic:* It is of great importance that critical thinking is logical. *Logical thinking* is meant to organize, sequence, and relate ideas in a way that leads to a clear meaning, and a consequence that is based on reasonable arguments (Al Atoum 2007; Jarwan 2002).

According to Elder & Paul (2001), the intellectual qualities that must be available to the human being until he/she completes building a critical personality are intellectual courage, intellectual empathy (that is to put yourself in other people's shoes in order to fully understand them, intellectual honesty and integrity, intellectual insistence, intellectual independence and confidence/ trust in reason and logic. In essence, critical thinking requires you to use your ability to reason. It is about being an active learner rather than a passive recipient of information.

The aim of the study

This study aims to understand the importance of developing the skills of critical thinking in education and impact on the student, where students live now in a complex society, requiring them to make a decision or to express a particular opinion in the case scientific, social or political factors that must be sought in order to reach the truth, The task of education here is to help community members develop their thinking through the use of teaching methods that inspire the curiosity of the learner, and contribute to the development of self-learning, away from the traditional approach that shows the learner as a recipient of knowledge, an ineffective individual; and in this study we focus on three questions **:**

- What is critical thinking?
- What is the role of the teacher in the development of critical thinking?
- What is the impact of employing critical thinking skills in education?

METHODOLOGY

Given the tremendous progress in scientific and technological knowledge, contemporary education always seeks to teach individuals how to think. In a way that enables individuals to continuously self-learn in order to deal with informational and social changes. Critical thinking is one of modern strategies that contemporary education seeks to continuously employ in the educational process. However, less research can be found on how to utilize critical thinking in the educational process and

determine its impact on the student. Therefore, qualitative research methodology was used as it is the most applicable method for this study.

Participants

As it can be seen in the table (1), 8 teachers participated in this research, 4 science and 4 religion teachers. 4 teachers whose experience is over 20 years, 2 teachers have experience over 10 years, and 2 teachers with almost 5 years of experience. The first letter of each participant's name was used to indicate the ideas and information from which they were taken. Thus, the participants were **W, T, O, A, D, S, Y,** and **N.**

Table1. Background information of participants

Participants	Gender	Age	Subjects Taught	Years of Experience	Education Level	Professional Development
W	Female	48	science	23	Bachelor degree	Attends annual workshops
S	Male	33	science	7	**M.A.**(Methods of Teaching Science)	Attends annual workshops
Y	Male	31	science	5	**M.A.**(Methods of Teaching Science)	-
O	Female	45	science	20	**M.A.**(Biochemistry)	-
A	Female	43	religion	15	**M.A.**(Islamic Fiqh)	Attends annual workshops
D	Female	35	religion	11	Bachelor degree	Attends annual workshops
T	Female	47	religion	21	Bachelor degree	-
N	Female	50	religion	23	Bachelor degree	Attends annual workshops

Data collection

In this study, the methodology of traditional qualitative research was used to collect the data and information from Arab and foreign books and research in order to answer the questions presented above. According to Lederman (Thomas et al. 1995), a focus group technique involves the use of in-depth group interviews, the group being "focused" on a given topic. In addition, according to (Kvale1983: 174), a qualitative research interview is an interview which purpose is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena. The **purpose** behind conducting interviews and focus groups with teachers directly as a tool was in order to gain more knowledge and to know more about the procedures done by both religion and science teachers in employing critical thinking skills strategies in the educational process .In this way, the researcher can explore the depth and nuances of opinions on the subject matter of the study as well as understanding the differences in point of views and opinions. Face-to-face interviewing may be appropriate when the research is primarily focused in gaining insight and understanding (Gillham 2000:11; Ritchie & Lewis 2003:138). Interview is a "fact-producing interaction" (Gomm, 2004). Prior to interview, information on this study was provided in detail to the participating teachers. The researcher asked the participants several questions about the topics which have been discussed. Having the interview being conducted in a comfortable and quiet room encourages the teacher to reflect and give a response with depth and clarity and distant from any bias. The researcher worked as a supervisor and director of the debate and discussion. Additionally, for accuracy and transparency, interviews were recorded with permission from the person interviewed. All participants in were cooperatively, willingly and pleasantly involved in the process of this study and greatly contributed for the completion of the data collection without any defects.

Data analysis

To analyse the data obtained through focus group interview Miles-Huberman Model of qualitative data analysis was followed. It sequenced as coding, data reduction and data presentation. Hence, data in the form of Audio and notes taken during the collection session was transcribed into texts by looking on similarities between and frequency of ideas and rechecked in line with notes and audios taken during the collection process. For the transcription, coding and checking of the data completed, unnecessary details were reduced by summarising the data precisely. The data organized, compressed and described. Then the data was presented back to the participants to check its representativeness and confirmation was received, comments included.

Comments and feedback were also taken during the interview to verify the questions and recorded answers in order to be written and organized later on. Then the data grouped inductively into more precise and general categories based on the data. Thus, there were three (3) themes emerged from data; impact of critical thinking on education, importance of critical thinking and role of teachers in employing it into education. Then the data stated under themes and categories was sent to four (4) different professionals via mail and their comments were almost similar to original work.

FINDINGS AND DISCUSSION

The importance of employing critical thinking in the educational process

Critical thinking is a necessary life skill of reflective and analytic thought, where it is currently considered one of the most important educational goals that must be achieved and delivered; especially that today's societies are subject to fast consecutive changes. The importance of critical thinking becomes clear when making decisions in such societies. The results are often based on erroneous assumptions and unsupported arguments by sufficient or accepted evidence. The development of critical thinking needs to take a number of factors into consideration, such as scientific criticism, non-conformity with people's common ideas or view, not taking extreme views or opinions, as well as avoiding subjective opinions. As an addition, the teacher's perspectives as well as their opinions that have been collected through interviews and focus groups which all emphasized the importance and significance of critical thinking in education, its influence or impact on students particularly and on the community in general. However, we have to ask, what is the role of the teacher, how does he/she help students to think critically, to voice as well as discuss their thoughts and finally how does that contribute to the students' academic achievement as well as behaviour?

The role of the Palestinian teachers in employing critical thinking in education

It is important for educators to understand that the role they play in developing critical thinking is different than the role they are typically playing. In order to engage students in critical thinking, the educator needs to act as a facilitator to allow for discussion and encourage a freer thought process, as well as to encourage understanding that thinking critically does not always end with a right answer, but instead sometimes ends in more questions or differing evaluations of the topic (Halx & Reybold 2005; Arend 2009).

Science teachers

According to Teacher **W**, thinking is the work of mind and the basis of education, where by working and developing thinking the individual can progress and develop in all areas of his life. **W** stressed that the Palestinian curriculum stimulates students to think. It is full of enjoyable activities and scientific experiments. In addition, **W** expressed the importance of the "qualitative assessment" in the educational system in Palestine, which includes 30 marks of the student's total score, where the "qualitative assessment" is divided into 3 sections:

- The extent of the student's involvement and participation in the educational process**.**
- Experiments and activities in the book and discussion questions that fall under each activity.
- Each student participates in a special scientific project and discusses it in front of the class through presentation or enrichment of the scientific material, which was studied, through video or educational means, and discusses it with their classmates.

"The qualitative evaluation has a positive impact on the teacher and the student as well. It increases the teacher's experience in teaching and makes the student the centre of the educational process. The student fulfils the role of the small scientist, and researcher through his research on a subject for a project that suits his tendencies and abilities".

Teacher **W** highly welcomed the subject of critical thinking in education. She is very interested in it while teaching by using (a project learning strategy) which motivates students to research and create new ideas. According to **W**, science is a sea of ideas but needs the attention and motivation of the student and the teacher needs effective guidance to motivate and help the student move in the right direction.

O and **W** discussed many methods they use to develop critical thinking, such as learning by playing. **W** added that she performed a game in the school yard with her students to explain the lesson (speed and factors on which it depends). **W** expressed her delight in the students' activity, as their participation and enthusiasm increased through their speed in computational procedures and their ability to guess the correct answers.

Teachers **S** and **W** use technology to employ critical thinking. **W** explained that the presence of technology helps in solving many of the problems they face in education. Because of the low economic situation in Palestine, education is facing many problems such as lack of necessary laboratory equipment in schools and the large number of students in a class. **S** and **W**

use virtual labs on the Internet for science curricula. This application contains all the experiments and activities in the curriculum, where all elements of the experiment are present. The scientific experiment is explained in a high precision and in a fun and interesting way for the students. Each student was taught how to use this application. According to **W** "this application influences students' activities and thinking, and facilitated the abstract scientific material; where the teacher noted that students understand, discuss, interpret and analyze scientific experiments in a way that facilitated and linked what they learned in their daily life".

Participant **Y** in this research stressed that the development of critical thinking skills among learners is one of the most important goals that modern educational systems seek to achieve, because of their positive effects on performance both in the academic and professional fields and in all areas of life. It also creates a generation that is aware and educated. **Y** uses the method of solving scientific problems, which are related to the students' daily life in addition to teaching the students' decision in a timely manner. Participant **Y** emphasizes the importance of the role played by the teacher through the use of modern strategies that seek to develop critical thinking. Teacher is the planner, initiator, and director of the discussion.

Teacher **O**, who has a Master of Biochemistry and 20 years of experience, stated that critical thinking is very important in the educational process. Teacher **O** recommended that parents should take care of their children's questions since childhood and not discourage their curiosity and questions**.**

According to teacher **O**, critical education comes with instinct and is not acquired as some studies and research have stated, but it needs attention and development. Teacher **O** uses many methods that develop students' critical thinking (such as learning by playing), which simplifies science lessons and increases their enjoyment. She also said that she uses the problem-solving method through a question that motivates students' thinking, propose solutions and discuss the solutions proposed among them.

Teachers of religious studies

Participant **D** is concerned with the use of critical thinking while teaching. She uses the method of representation with examples from students' daily life and links it to the lesson where it is easy for students to understand interpretations of the verses. Teacher **D** said "this method increases their motivation interest, teaches them how to link science and real life, and increase their motivation in the search and exploration of interpretations of the verses of the Quran". Both **D** and **T** use the six thinking styles while giving the religion lessons to develop students' thinking. They divide students into groups and give each student a hat in a different colour in order to give his/her opinion on a story of the Quran. For example, students stated the positive aspects of the story by wearing the green hat. While using the red-hat, students expressed their feelings and emotions as they hear the story. In addition, while using the black-hat, student talked about difficulties or negativities in the story, this strategy motivates students to express their opinions and emotions. It also trains them to see stories and topics from multiple angles.

Teachers **T** and **N** mentioned that the methods used to employ critical thinking in the religion class are open-ended questions which stimulate the students' minds and thinking. This method increases the student's participation in the class and how they solve a problem and how they perceive it.

Teacher **A** uses critical thinking by dividing students into groups, putting them in a problem scenario or asking a question which contains false information. Students must correct the question, research and think about solving the problem. This is done by collaborating among members of the same group and writing their own ideas and suggestions for the problem. Then, they present their answers and discussion in front of the class. From the perspective of **A**, this method preserves the information in the student's mind and facilitates the linking and building of new information. She added that she used the strategy of visualization during the lesson of "Heaven's Bliss" by interpreting the Quran verses concerning the bliss of Paradise. Teacher **A** expressed the students' joy when she uses this strategy which increased their love of chores that draws them closer to God in order to win the blessings of paradise.

The impact of employing critical thinking in education in Palestine

According to **Y**, the Palestinian student needs to develop critical thinking skills since they live under the Israeli occupation and the pressures of life are great on them. Understanding students' critical thinking dimensions helps them to create an extraordinary mechanism of thinking that makes it easier for them to get out of the stress and problems they face in all aspects of their lives.

From the point of view **S** and **W**, one of the most important effects of critical thinking is the ability of the individual to make decisions and solve the problems they face, where decision-making comes through a series of deliberate steps and reflection and thinking that help the individual to make the right decision in a timely manner. As students move to significant stages in their lives, it will be required from them to make harder decisions, whether being a university student, an

employee, a husband or a father. Therefore, learning and training to make decisions since childhood is necessary and important for all stages of his life.

According to the religion class teachers' point of view, the use of critical thinking motivates the teacher to use many strategies which increase the motivation of students in research, reflection and questioning.

According to **N** and **D**, the use of critical thinking increases students' love of religion compared to traditional education, noting that students increasingly ask questions about values, judgements, and interpretations of the verses where it is also related to their real life. The participants in the focus groups agreed that the most beautiful effects (lessons of thinking) is the feeling of the students' closeness to God and the pursuit of satisfaction through charity and prayer and the love of good for all. According to teacher (**D**) "the use of thinking in the religion lessons through storytelling and imagination leads to the consolidation of values and principles in the students' character and their love of the stories of the Sahabah in addition to many of the stories mentioned in the Islamic religion that increase their motivation to follow their footsteps".

Critical thinking in religion requires meditation, reflection and questioning. According to teacher **T**, the use of critical thinking in teaching increases the students' motivation to question and think about the subject of the lesson and ideas while linking all aspects of their daily life to subjects they learn such as respecting parents. Participation (**A**) stressed the importance of critical thinking has regarding the students' personality. It increases their self-confidence and increases their knowledge and ability to analyze and evaluate problems and find solutions for it.

CONCLUSION AND SUGGESTIONS

Critical thinking is seen as a necessary life skill whereby the process of improving thinking is, in essence, creating the habit of reflection and questioning in every aspect of life (King 1995; Scriven & Paul 2005).However, studies have long indicated that students are often not learning at critical and reflective levels in higher education (Ramsden 1992; White 1992). Teachers' attitudes in this study regarding the use of critical thinking in education were positive as there was a diversity of views and different roles. There has been an interest by teachers for the renaissance of education and to push away of what is familiar and traditional way of teaching and thinking. The educational system in Palestine requires teachers to participate in many training courses that train teachers and qualify them to use modern teaching strategies which aim to develop the abilities and skills of the student and make it the centre of the process through its involvement in experiments, activities and scientific projects.

Teachers mentioned many of the strategies they use in class that include: learning by playing, thinking hats, solving problems through group work and the use of technology through the use of virtual labs. Teachers encouraged the use of any strategies that develop the skills of critical thinking, analysis and interpretation where students learn how to make decision, solve problems, and how to express their opinion in all areas of life and empower their personalities.

The best way to get students to think critically is to formulate and provide the lessons in the form of problems and questions that require students to practice their own thinking to get to the resolution. The most important factors that help to develop the skills of critical thinking is to focus the school curriculum on the problems of interest to students in addition to studying the misconceptions both in the environment and the community, as well as to encourage students to discuss, research and to look for information while creating an atmosphere of democracy in the classroom. The debate is an input to the development of thinking skills. Debate-based discussion requires participants to conclude and elicit arguments, where the thinking process moves its focus from the general situation or the general issues to the sub-issues; they also need to be consulted as the mind moves from the particular issue to the general issue. Developing students' critical thinking skills leads to a deeper understanding of the content they are learning. Learning is fundamentally a process of thinking, and employing thinking transforms the process of acquiring knowledge from a passive process into a mental activity that leads to better mastery of the content.

However, with all the positive roles played by teachers in Palestine for the renaissance of education, there are difficulties and problems faced by teachers in Palestine which hinder the use of critical thinking in the educational process:

- Teachers stressed that the student is the center of the educational process, and that the role of the teacher is to guide students and motivate them through the use of a variety of strategies. However, the problem being faced at the present time is the presence of a large proportion of students who are more concerned with the mark they take more than understanding, thinking deeply in the subjects they are learning. According to participants, this may be due to parental interest in the academic achievement of their children rather than to develop their thinking skills.
- One of the obstacles facing teachers in Palestine is implementing modern learning strategies which develop students' critical thinking skills is the students' number per class which exceeds 35 students in each class

sometimes. This increased students' number in turn increases the difficulty for the teachers to deal effectively with all the students in the classroom. Teachers stated that the ideal students' number per class would be 20 students.

- The teachers involved in this study stressed that the new education policies and the many ministry laws in Palestine also limit the teacher's creativity and his efforts to develop himself, with all the ministries of education in Palestine seeking to renaissance and development of education, but there is no reward and appreciation of the status of the teacher.
- The multitude of written works that teachers complain which include: continuous preparation, content analysis, goal setting, and daily lesson plans which include strategies, used tools, test preparation and many more. All these tasks reduce the motivation of the teacher in working to develop the critical thinking skills of each student.

In this context, the following suggestions can be stated:

- Introduce a subject into the curriculum which is called (critical thinking). Through that lesson, there can be a lot of activities, experiments, and field trips which increase the student's awareness of their abilities and discover the skills they possess. This can enable the students to identify their strengths and weaknesses and facilitate the decision-making process in their lives.
- Provide courses for parents on the importance of critical thinking and the impact of this type of thinking on the personality and future of their children where One of the biggest difficulties facing education is that the student has no desire to think and develop his skills, this may be due to parenting and lack of interest in developing their children from this aspect.
- Increasing the state budget for education and pay more attention to classroom environments and ensure that technology is accessed by all teachers.
- Increase teachers' pensions. The Palestinian teacher's pension does not fit the standard of living and does not even reward them on their work in education.
- Reduce the number of education quorum per teacher in order to attract more teachers into the education sector and reduce the unemployment rate.
- Assign an assistant for each teacher who can help teachers in their tasks so it can lessen the pressure on teachers in order to be more attentive to students' needs in the classrooms.
- Increase the number of sections where the total number of students per class does not exceed 20 students.

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