
THE DEVELOPMENT OF CRITICAL THINKING AS THE PRIMARY GOAL OF THE EDUCATIONAL PROCESS

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ABSTRACT

The study was conducted to find out the development of CT (Critical Thinking) as the primary goal of the educational process. The objectives of this study were; to investigate the elements as a primary goal of critical thinking, to explore the importance of CT, to identify different instructional strategies that are used to develop CT among students, and to find out the barriers that create hindrances in the development of CT. A descriptive quantitative survey design and simple random sampling technique were selected for this study. The population of this study is all colleges (i.e. 20 Government and Private) of district Rahim Yar Khan. 380 students (girls and boys) and 120 teachers (males and females) participated as a sample. For data collection, two self-structured questionnaires were used; one for students contains 40 items, and one for teachers contains 30 items. After data collection, it was analyzed by SPSS. Results reveal that critical thinking develops with the help of different instructional strategies. 90.5% agreed that CT is particularly important in education. 86.6% agreed that during the discussion, teachers gave them the opportunity to express their viewpoints. 91.7% agreed that they use a teamwork strategy that helps them to develop CT.

KEYWORDS

Critical Thinking, Development, Primary goal, Educational Process

INTRODUCTION

According to Allamnakhrah (2013), the twenty-first century is expected to bring faster

and more drastic changes to every aspect of life. It is estimated that familiarity would double every three to five years in this century. If this is the case, evaluating acquaintance critically to ascertain its efficacy and choosing the best one for individual and societal advantage becomes more crucial. The need for developing CT (Critical Thinking) has been underlined by educational professionals for people to deal with the new challenges of constantly expanding knowledge (Komara & Sriyanto, 2018).

The goal of education in the twenty-first century is to help pupils acquire the life skills, such as Critical Thinking, that they will need to handle future challenges and solve issues in their everyday lives (Amrullah et al., 2022). It shows that education is more than just a way to change information; it's also a way to help students to develop their capacity for evaluating claims that developed into judgments (something believed) that eventually become claims.

According to Brookfield (2012), CT (Critical Thinking) is a life skill that is essential for success. Additionally, it is stated that CT should be incorporated into the teaching-learning process because it benefits both an individual's personal and academic lives (Dwyer et al., 2011). It might be argued that CT education and awareness must be a part of a bigger cultural revolution that starts in the classroom with competent teachers to effectively teach and promote CT. As a result, students are trained and encouraged to think carefully from an early age, a skill they will carry with them throughout their lives. Teachers who have had such training, on the other hand, must lecture to students. The fact that CT has been the focus of several international conferences, technical publications, and academic articles is therefore not surprising. To prepare their students to utilize common sense and critical thinking together, evaluate, and apply information so they can solve problems and make better decisions in their employment and personal lives, many academic institutions have placed a long-term emphasis on CT (Ebadi & Rahimi, 2018).

Choosing to receive information, creating opinions based on suitable, logical, and non-subjective reasoning, and assuring the correct conclusion all need the use of CT (Bassham et al., 2011). According to Lloyd & Bahr (2010), someone who thinks critically and carefully gathers references and evidence before coming to a conclusion or accepting a particular piece of information. The development of CT techniques is obligatory for it to be used in academic research projects, issue-solving, and critical decision-making. Students are generally recognized as one of the most important human resources in every country.

According to Kettler (2014), instructional strategies have a significant impact on students' CT abilities. There are the greatest instructional strategies for developing students' CT (Paul et al., 2019). According to Merisier et al. (2018), an analysis of

intervention programmers aimed at improving students' CT (Critical Thinking).

According to Florea and Hurjui (2015), learners need to dynamically participate in the learning process to enhance CT. Moreover, learning settings should promote active engagement rather than rote memorization, in which students are only consumers of knowledge, to develop CT (Tan, 2017). Instead of being a passive process, CT is a process that is developed by active learning techniques that activate mental functions (Bean & Melzer, 2021). The goal of education in this country is to give pupils a wide range of skills and help them to improve their systemic, higher-order cognitive, and critical-thinking abilities (Iswan & Bahar, 2018).

LITERATURE REVIEW

Thinking is a mental process that draws on former knowledge and leads to new ideas. It can be defined as a higher-level cognitive process (Bialik & Fadel, 2015). Furthermore, Al-Osaimi et al. (2014) distinguish four types of thinking: *critical*, *scientific*, *creative*, and *reflective*. Scientific thinking is concerned with the nature, location, and conduct of experiments. Creative thinking is concerned with the development and uniqueness of something. Reflective thinking is concerned with the comprehension of systems to conduct investigations. Critical thinking is in-depth and analytical thinking.

The process of analyzing, evaluating, and synthesizing facts, ideas, views, and theories is referred to as CT (Critical Thinking). One definition of CT is “*a thoughtful and rational thought process that incorporates profundity, precision, and keen reasoning to determine the worth of a choice, an object, or a theory*”; another describes it as “*a technique by which a thinker takes charge of his or her thinking*” (Alwehaibi, 2012). Reasonable Critical Thinking is seen to be thinking that focuses on determining what to believe or do (Ennis, 2018). Critical Thinking abilities are an important part of contemporary education (Walter & Walter, 2018). As well as crucial competencies in students' effective performance (Mutakinati & Anwari, 2018). It is a necessary skill for students to have to solve difficulties and a method for making smart judgments (Ozgenel, 2018) so that we may do what we believe is best regarding a fact.

Critical Thinking assists students in determining the reason for a change in a variable as well as the influence of one variable on other variables (Duran & Dökme, 2016). Additionally, practical, introspective, rational, beliefs, and behaviors are vital in CT. CT is described as reflective thoughts that focus on determining what to trust to do based on this combination of five essential components (Handoyo et al., 2019). Students' CT abilities are vital to developing during the learning process since they provide the foundation for understanding science subjects. The capacity to think critically is crucial for pupils because it allows them to think sensibly while dealing with challenges in everyday life. Furthermore, CT abilities may be employed to

address difficulties. It may be considered when making sound judgments (Dewi et al., 2016). Because of its part in learner-centered education, CT is significant. Dewey emphasizes a learner-centered approach that is receptive to many theories of how pupils should be taught (Schiro, 2012). Dewey's social learning theory and educational principles may be regarded in the context of the classroom as a social entity for students' problem-solving, similar to a community, in the learner-centered approach. Students in these classrooms are distinct people who are occupied with creating their meaning rather than imposing information. Students can acquire problem-solving skills through practical exercises (Schiro, 2012).

It has been suggested that CT is crucial for effective educational achievements (Spatariu et al., 2016). Developing CT (Critical Thinking) abilities is necessary to become a successful reflective thinker (Higgins, 2015). The development of Teachers plays a crucial role in fostering CT skills, and educational institutions are working to ensure that the students are prepared to operate "*In a multitasking, multifaceted, technology-driven, diversified, lively environment*" (Bialik & Fadel, 2015). Alosaimi (2013) highlighted the significance of encouraging students to develop CT skills:

- It encourages participation in classroom learning.
- It creates a classroom atmosphere dependent on intentional conversation, which may lead to the suggestion of such activities, that students may engage in both within and outside the classroom.
- It transforms knowledge acquisition from a passive to an active process, promoting deeper mastery and greater comprehension of cognitive information.
- It provides clear and satisfying explanations for the topics covered in class.
- It gives pupils the ability to critically evaluate and control their thoughts, which leads to a rise in the accuracy of their reasoning, ultimately assisting them in making judgments and safeguarding them from emotive passivity and unmoderated estimation.
- It increases students' capacity to study.
- It enhances pupils' performance across a wide range of academic topics.
- It promotes frank conversation, civil debate, and liberality. It also helps students develop their skills to interact with teachers and other students and negotiate.

According to Alosaimi (2013), teachers must do a better job of encouraging students to think critically in the internet era since doing so will hold them responsible for their learning and eventually boost their confidence as independent learners. Questioning is an old practice that was introduced by Socrates over 2500 years ago. Since this method has been effective for productive learning, it has been demonstrated to be helpful for

the development of CT abilities among students in problem-solving in practical situations (Conner et al., 2017). Therefore, to solve these issues, innovations are required. Discussions during the learning process might help students strengthen their CT abilities (Schoenberger et al., 2014). PBL (problem-based learning) strives to develop a variety of abilities, including self-directed learning, teamwork, CT, problem-solving, and communication (Desai et al., 2014). Inquiry-based education is considered to be more successful and beneficial for learning and developing knowledge and CT skills than standard teaching methods (Blanchard et al., 2010).

Students' critical thinking can be encouraged through written assignments, whether they are completed in class or outside of it. Students may be placed in situations requiring unique use of their thought processes by questions or projects unique use of their thought processes by questions or projects that have been specifically created for them. For students who, for various reasons, such as shyness, or lack of ability to communicate verbally, written assignments are the most effective way to evaluate and improve their critical thinking skills. According to Walker (2003), *"both in-class and outside-of-class assignments can serve as powerful vehicles to allow students to expand their thought processes"*.

Development of CT through self-assessment is a necessary phase in the CT process at every stage. Any academic course must incorporate self-assessment into its structural structure and not only rely on haphazard methods because of how crucial it is to CT. In general, teachers should provide feedback to students, but students should also provide feedback to one another on the caliber of their work (Paul & Elder, 2019). Students gain knowledge about the importance of the learning process, how to display their learning, and how to recognize and use formative continuous feedback as they learn to evaluate their peers. They get better at self-evaluation and become more conscious of the fact that there is always room for development. The strategy of a broad study of the strengths and weaknesses of student work in a class was chosen in the development of this CT peer- and self-assessment procedure. In their study, Wahyuddin and Ristiana (2022), assert the qualities of CT include the following points:

- 1) Be well-versed in the components of the whole
- 2) Capable of spotting issues
- 3) Capable of separating concepts that are important from those that are not
- 4) Knowing the difference between truth, opinion, and diction
- 5) The capacity to spot discrepancies or information gaps
- 6) Capable of discerning logical arguments from illogical ones.
- 7) Capable of generalizing based on field data and data that are already in the public domain.

RESEARCH OBJECTIVES

1. To explore the importance of critical thinking in the educational process.
2. To identify different instructional strategies that are used to develop critical thinking among the students.
3. To investigate the elements as a primary goal of critical thinking.
4. To find out the barriers that create hindrances in the development of critical thinking.

RESEARCH QUESTIONS

1. What is the importance of CT in the educational process?
2. Which instructional strategies are used to develop CT among students?
3. What are the elements of the primary goal of CT?
4. Which barriers that create hinder the development of CT?

RESEARCH METHODOLOGY

For this study, a descriptive quantitative survey design was used. This study design was chosen primarily to examine the opinions of a large number of individuals. The most significant aspect of this design was the use of a questionnaire to collect the data, which made it objective and accurate. For the vast population, a representative sample was chosen for this type of research design. This acquired data was examined so that relevant conclusions and inferences might be drawn. In order to collect the data for this research study, two questionnaires (one for students and one for teachers) were developed. Questionnaires are considered a very effective and easy tool for the collection of data. 5-point Likert scale; Strongly Disagree SDA (1), Disagree DA (2), Neutral N (3), Agree A (4), and Strongly Agree SA (5), were used in the questionnaires.

The questionnaire that is used for students' data collection consists of 40 items and the questionnaire used for teachers' data collection consists of 30 items. The population of this research consisted of all colleges (Government & Private) from 4 Tehsils (i.e. Rahim Yar Khan, Sadiqabad, Khanpur, and Liaquatpur) which are located in the district of Rahim Yar Khan. A total of 23 Government and 70 private colleges are located in the district of Rahim Yar Khan. The sample size is 380 (girls and boys) students and 120 (Males and Females) college teachers from (20) Government and private colleges district Rahim Yar Khan. The technique that was used to collect the data from a population is simple random sampling. The list of colleges, students, and teachers that are part of the sampling is mentioned below.

Table 1:

Sr. #	Colleges Name	Students	Teachers
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1	Govt. Khawaja Fareed College, Rahim Yar Khan	35	22
2	Brookfield College, Rahim Yar Khan	25	06
3	KIPS College, Rahim Yar Khan	19	11
4	MTB College, Sadiqabad	15	09
5	NICASS College, Khanpur	07	10
6	NICASS College, Rahim Yar Khan	28	-
7	Oxbridge College, Rhim Yar Khan	13	10
8	Govt. Graduate College for Women, Rahim Yar Khan	83	10
9	Govt. Fatima Jinnah College, Khanpur	20	06
10	Govt. Associate College, Kot Samaba	23	11
11	Alpine College, Khanpur	20	-
12	Govt. Associate College, Rahim Yar Khan	11	-
13	Govt. Graduate College, Liaquatpur	11	-
14	NICE College, Rahim Yar Khan	24	-
15	Punjab College, Rahim Yar Khan	17	-
16	Superior College, Khanpur	20	-
17	Aligarh College, Rahim Yar Khan	-	04
18	Iqra College, Sadiqabad	-	06
19	Punjab College, Liaquatpur	-	15
20	Aspire College, Liaquatpur	09	-
Total		380	120

Validity of the Tool

In order to validate the tool, consulted with my supervisor and other experts. They comprehended the material and identified a few grammatical errors in the statements. In addition, they advised grammar modifications for improved clarity and compression. The questionnaires were modified based on the judgment of the experts.

Reliability of the Tool

Cronbach's alpha a method used for checking reliability which measures the correlation coefficient between variables, was used to the data acquired.

Reliability Statistics of Student's Questionnaire

Table 2: Reliability Statistics

Cronbach's Alpha	Number of Items
865	40

Reliability Statistics of Teacher's Questionnaire**Table 3: Reliability Statistics**

Cronbach's Alpha	Number of Items
.760	30

DATA ANALYSIS

SPSS (version 19) was used to input all of the data that was collected. The data were double-verified to guarantee that they were entered correctly. Values that were missing were added, and the formatting was inverted whenever it was necessary. Following the processing of the data and the addition of the lacking values, the data folders were prepared for the analysis of the data. To provide an accurate portrayal of the data and provide answers to the research questions posed by the study, descriptive statistics, such as the percentage, frequency, standard deviation, and mean.

FINDINGS

I found the below mentioned points in this study:

Findings of collected data from students

- 90.5% agreed that critical thinking is particularly important in education.
- 88.7% agreed that critical thinking activities improved educational opportunities.
- 86.8% agreed that they have a well-defined goal in mind when it's critical.
- 85.5% agreed that they have the ability to judge the value of new information presented to them.
- 75.5% agreed that they can evaluate the arguments of others well.
- 86.3% agreed that Critical thinking helps them to think more logically.
- 78.2% of students agreed that they think critically during class or lectures.
- 77.9% agreed that after completing a learning task, they always ask as is there any other way for solving the same task.
- 80% agreed that teachers ask questions that require remembering certain facts.
- 78.7% agreed that teachers ask questions that help to predict what comes next.
- 81.8% agreed that teacher asks questions that check the understanding, of how to do something.
- 80.5% agreed that teachers ask questions that challenge them to think in new ways.
- 78.2% agreed that teachers ask questions that require sharing their opinions.
- 77.1% agreed that teachers ask questions that help to reflect on learning.
- 77.4% agreed that teachers ask questions that help to relate their understanding to the real world.

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- 78.1% agreed that teachers ask questions that help to use a new learning in other topics.
 - 86.6% agreed that during the discussion, teachers gave them the opportunity to express their viewpoints.
 - 77.9% agreed that the teacher put the students in small groups to solve a problem.
 - 82.1% agreed that at the end of the group discussion, the participation of each member is ensured.
 - 77.1% agreed that the teacher used the Project method to enhance critical thinking among students.
 - 77.6% agreed that the inquiry method develops critical thinking.
 - 86.3% agreed that they can express critical thinking well in written work.
 - 80.5% agreed that they think critically while reading.
 - 81% agreed that they can rephrase the arguments of others in their own words easily.
 - 81% agreed that Critical Thinking helps them when the teacher gives feedback on written work.
 - 80.2% agreed that presentation in front of classmates develops critical thinking.
 - 76% agreed that at the end of the presentation, the teacher asked students to tell at least one positive and one negative point of the presentation of their peers.
 - 75% agreed that Critical feedback on the presentation enhances critical thinking.
 - 74.2% agreed that the teachers have to cover lengthy content with a limited time barrier in critical thinking.
 - 71.6% agreed that pre-service programs do not stress improving critical thinking skills.
 - 72.9% agreed that there is a lack of interest in teachers in learning activities.
 - 71.3% agreed that teachers believe only certain students can perform higher-order thinking.
 - 70.2% agreed that teachers do not have enough resources.
 - 74.2% agreed that the education system of Pakistan is not supportive of critical thinking.
 - 74.8% agreed that teachers do not provide sufficient time for critical thinking in class.
 - 37.9% agreed that teacher resistance to accepting the different ideas or thoughts of students
 - 78.6% agreed that identifying different problems is an element of critical thinking.
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- 80.2% agreed that focusing on the solution to different problems is one of the elements of critical thinking.
 - 77.4% agreed that they think that observation improves critical thinking.
 - 85.3% of students agreed that communication skills developed critical thinking.

Findings of collected data from teachers

- 95% of teachers agreed that they used different presentation styles to develop critical thinking.
- 99.2% agreed that they relate new content to prior knowledge for the development of critical thinking.
- 88.4% agreed that they broke content into different tasks and organized hands-on activities.
- 92.5% agree that they allow the practice of new skills.
- 89.1% agreed that they consider what their colleagues will say when they think about possible choices.
- 87.5% agreed that they have developed a more open-minded approach to interpreting, analyzing, and judging alternative points of view.
- 90.8% agreed that they instruct students to think more deeply.
- 92.5% agreed that they give instruction that enables students to consider multiple sides of an argument.
- 86.7% agreed that Role playing with students assesses their learning.
- 87.5% agreed that they presented the topic in a way that enhances students' interest.
- 85% agreed that during the lecture, they frequently ask questions.
- 81.7% agreed that after asking a question, students are given time to think before responding.
- 91.7% agreed that they use of teamwork strategy that helps to develop critical thinking.
- 85% agreed that probing questions are raised to stimulate discussion.
- 92.5% agreed that questions that promote intellectual curiosity are encouraged in class.
- 85% agreed that accept and believe by debating over the issue
- 82.5% agreed that home activities enhance critical thinking
- 87.5% agreed that students are afraid of making mistakes.
- 92.5% agreed that students perceived textbooks as an authority.
- 88.4% agreed that students lack the needed background knowledge for improving critical thinking skills.
- 83.3% agreed that students lack experience in improving critical thinking in

school.

- 90.9% agreed that students are impatient with the difficulty of critical thinking.
- 89.1% agreed that a student's intellectual level is a factor that affects critical thinking.
- 84.1% agreed that unawareness of the importance of critical thinking is a factor that affects critical thinking.
- 80.8% agreed that a lack of confidence influences students' learning.
- 80.8% agreed that students' family background affects their thinking skills.
- 85.9% agreed that analytical practice is at the core of the development of critical thinking.
- 85% agreed that Critical thinker assesses information against multiple criteria.
- 83.4% agreed that they try to provide the best explanation to students which develop critical thinking.
- 90.9% agreed that they consider whether the sources were trustworthy for the development of critical thinking.

DISCUSSION

The first goal of this research is to investigate the significance of using CT (Critical Thinking) in the instructional process. The majority of participants thought that education should place a particular emphasis on critical reasoning. The ability to think critically made instructional activities better. The practice of CT requires having clear objectives in mind. The ability to think critically allows one to evaluate the significance of new information. Using one's CT skills to thoughtfully consider the reasoning presented by others.

The second goal of this section is to catalog the various instructional strategies that can be used to foster analytical and deductive reasoning in the student body. The vast majority of participants believed that various strategies, including questioning, problem-solving, project, investigation, and role-playing, are utilized to foster the development of CT among students. The vast majority of respondents believed that students' CT can be stimulated through written work, reading, presentation, and critical comments on the presentation.

The investigation of the components as a fundamental objective of CT is the focus of the third objective. The majority of respondents thought that the primary goal of CT is the identification of various problems, the concentration on the solution of various problems, observation, communication, analytical practice, evaluating information, providing the best explanation, and locating reliable sources for the development of CT, elements that makeup CT.

The fourth goal of this project is to investigate the obstacles that stand in the way of the development of CT. The vast majority of respondents were of the opinion that students are scared of making blunders, the students viewed their literature as an authoritative source, and students do not have the necessary understanding of relevant contexts to improve their CT abilities. Students' lack of knowledge regarding the significance of CT, their intelligence level, and a lack of self-assurance, students' family upbringing, the education system in Pakistan is not encouraging of CT; the instructors do not allow adequate time in class for students to engage in critical reasoning. CT encompasses extensive material in a short amount of time, pre-service programs do not stress CT, and there is also a lack of enthusiasm in teaching and learning activities. The teachers consider that only a select few of the students are capable of higher-order reasoning. The educators do not have adequate access to materials. Youngsters lack experience; the impatience of students in the face of the difficulty of CT is an obstacle that creates a hindrance in the development of CT.

RECOMMENDATIONS

Further research can be on a broad divisional level.

In the future, research may be conducted at the high school and university level.

Further studies, can use qualitative methods.

Future researchers may be used experimental research.

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