

**THE PSYCHOLOGY ASPECTS OF THE LEARNER AND THE TEACHER DURING  
THE INTERVENTION  
PROGRAM WHICH AIMED AT DEVELOPING CRITICAL THINKING**

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***Abstract:** This article presents the results of qualitative research/action research that tested the effect of an intervention program focused on developing critical thinking on the psychological aspects of the learner and the teacher during the intervention process. The ability to think critically and reason well has been regarded as an essential and necessary outcome of education (Dewey,1933). Perkins (1992) argues that many students finish their studies with “Fragile Knowledge Syndrome.” Therefore, it emphasizes the need to cultivate thinking as a means of change in the psychological aspect of the educators and learners that affect the teaching-learning processes. Traditional teaching is inappropriate for the changing and challenging world, which demands critical/evaluative thinking based on rational thinking processes and discussion. Studies indicate that students' Critical thinking positively influences academic achievement (Hashemi & Ghani Zadeh, 2012). The researcher assumes that training in critical thinking affects the cognitive and psychological aspects of the learner's development. And improves the students' critical thinking abilities and tendencies. The researcher conducts a qualitative study to understand the processes of change in critical thinking, attitudes, intentions, and desire towards critical thinking, and how students perceive this change because of the training in critical thinking. She used qualitative tools for collecting data, observations, and focus groups. Data analysis was done using the Tomas method (2006); two main findings of this research are the effect of the training tasks on change in critical thinking and change in attitudes, intentions, and desires toward critical thinking. Second, Mediation is an important and basic feature of the educator who develops critical thinking*

***Key words:** Critical Thinking, psychological aspects, creativity intelligence, Personality Metacognition, Personal level, Professional adaptation Dynamic lecturer, Mediation, change*

### **Introduction**

Critical thinking is a higher-order mental function influenced by social factors and performed within a social context. Critical thinking abilities and tendencies are given to learning (Facion, 1990), improvement, and change over time (Kennedy, 1991). There is no particular or fixed age for development that is willing to learn complicated thinking methods (Slvia, 2008). The concept of Critical thinking connects with sociopsychology concepts. Critical thinking is a central component of human intelligence and is responsible for many achievements

(Sternberg,1996). Relating to Socrates, critical thinking is qualified as an “ethical power guiding to virtue” and a "logical way of thinking which guides our attitudes." Having been defined as describing facts correctly,” today, critical thinking has many other definitions in the literature. The current research problem is related to the attitudes of college students who prefer to study according to the traditional method, the teacher's transfer of material. And they have limited usefulness and contribution to fostering critical thinking (Barnett, 1997; Halpern, 1988: Browne. & Keeley, (2010: Kurfiss, 1988 and Perkins, 1985: Bihar, 2011). The schools do not challenge students to think critically about academic subjects (Goodlade, 1984, 1992; Ennis, 1985: 1982: 2011: Paul, 1992). educators have agreed on the importance of "teaching" critical thinking in higher education (Barnett, 1997). De Cock & Elen (2018) pointed out that although there are research and interest in the subject, there is little agreement on how educators can support critical thinking development. The question arises as to how it can encourage critical thinking and enable change in knowledge through?

The researcher's experience in her work as a lecturer found that there is difficulty in realizing critical thinking processes as a result of the immersion method accompanying the actual curriculum; as a result of this experience at work, the researcher assumes that the occurrence of critical thinking is accompanied by psychological aspects that need to be known and understood to develop intervention programs that relate to these aspects to enable the development of critical thinking among students in a successful way (Rowe, 2014).

The researcher believes that combining critical thinking skills with the content taught in the subjects will enable the development of critical thinking (Abrami and colleagues, 2008; Ennis, 2011). the literature review shows that critical thinking is connected with sociology and social psychology concepts, such as culture, intelligence, creativity, and personality/character. This connection between these concepts affects the psychological aspects of the learner and the teacher during the intervention aimed at changing the processes of occurrence of critical thinking in the learner and the teacher as a guide to critical thinking. Two theories discuss the change in the sociopsychological aspect of the learner. Two theories discuss the change in the sociopsychological aspect of the learner. First, the Social-cognitive theory (Bandura, 1960) became the social learning theory (Bandura, 1986). The theory emphasizes social influence and the theory of planned behavior (Ajzen, 1991); the theory deals with changing attitudes toward critical thinking. In this study, the researcher examines the effect of training tasks on change in critical thinking and change in the psychological and social aspects of the learner, such as attitudes, intentions, and desires toward critical thinking, and how the learner receives the characteristics of the teacher during the intervention program

## **Literature review**

### **Critical Thinking definition**

Critical Thinking as a skill is thinking that is self-directed, self-disciplined, self-monitored, and analyzes and evaluates arguments (Scriven& Paul, 2008); practicing critical thinking enables knowledge about our beliefs and actions and to be sure that they really correspond to our values and intentions. There is no uniform and common definition and

understanding of the concept of critical thinking (Davies & Barnett ,2015: Paul, 1993, 2006). Also, there are different uses of the term, as in critical thinking skills or" high order thinking skills " (Halpern, 1998). rather than the concept of "critical thinking " is a (generic) (Liwise & Smith, 1993; Sternberg 1987).

Critical thinking contains two components, skills, and tendencies, based on an intellectual commitment to using those skills to guide behavior. But there is no complete agreement as to the extent of these skills and tendencies (Lia, 2011, Harpaz, 2005). These skills and tendencies are "general" genericities that can be used in general without a particular field of knowledge or specifics that can be used in a particular area of knowledge (Facion,2013). Paul (1993) defined critical thinking as combating prejudice and liberating force from prejudice, beliefs, and egocentric views (Facione, 1990). In his definition of critical thinking, Paul used "intellectual strategies."

Quality thinking leads to processes of change and improvement of thinking itself. Paul and Elder (2007:2020), argue “Much of our thinking, left to itself, is biased, distorted, partial, uninformed, or downright prejudiced. Yet the quality of our life and that of which we produce, make, or build depends precisely on the quality of our thought.” Critical thinking is therefore the foundation of a strong education.

Critical thinking is a liberating educational force and a powerful resource in one's personal and civic life. Critical thinking refers to the ability and desire to be open-minded to ideas regardless of one's beliefs and to engage in reflective and balanced thinking (Ennis, 1993). It is essential not only for academic studies but also for solving social, political, and ethical problems (Abrami et al., 2008; Paul, 1995). critical thinking a logical application to problem-solving skills, (Glazer 1942 in Fisher 2002, reflective thinking (Dewey 1933 in Fisher 2001: Moon, 2008: Body, 2008: Facione, 1990). critical thinking is a tool that fights against prejudices and opposes egocentric beliefs and opinions that block the progress of the individual and society.

### **The concept critical thinking connects with sociopsychology concepts**

The literature review shows that critical thinking concept is connected with concepts in the fields of sociology and social psychology as Culture, intelligence, creativity, Personality/character.

Rashid& Hashim (2008) indicates that some researchers as Fox (1994) and Atkinson (1997), think that critical thinking is a form of Western culture, and they believe students from Asia and the East are unable to think critically because critical thinking is thinking about a strange culture. The researcher opinion is that culture has no effect on the development of critical thinking because critical thinking is related to the abilities that were born with the individual that need to be nurtured, on the other hand, culture influences the shaping of the way people think. Critical thinking is related to the individual himself and the cognitive psychological structure, intelligence, and creative qualities and personality traits.

Guilford (1977) defined intelligence as the process by which the human being transforms the information of the environment into mental content so that he has an operational

vision of it. The author establishes three separate and independent dimensions based on perception, transformation of information, and response issuance. These dimensions discuss input elements or contents, operations, and output or product elements. Therefore, His model is three-dimensional and usually represented as a cube in which the interactions between the three large dimensions are interrelated to form up to 120 different factors. It is a taxonomic model that considers the different capacities as non-hierarchical, being the different skills independent. Intelligence is, therefore, a set of skills separated from each other that allow our adaptation to the environment.

Sternberg (1996) claims that critical thinking is a central component of human intelligence, critical thinking reflects intelligence. critical thinking is strongly influenced by intelligence and develops during an interactive process with the environment and the culture that surrounds the individual. And critical thinker is an intelligent person. According to this definition, there is a positive relationship between intelligence and critical thinking, but history shows that people with high intelligence do not necessarily think critically because of a belief system in fairy tales and mental analyses. For example, some Nobel laureates (Miller,2002).

Creativity is the process of producing original and relevant ideas for the given situation. Creative thinking consists of originality, flexibility, and usefulness. creativity can be expressed in any of the areas of human activity. The products of most types of creative work are a solution to a problem and thinking. Accordingly, the product of creativity can be an idea, conceptualization, artistic form, theory (Schwartz, 2011). Edward de Bono (1992) argues that creative thinking is defined as the ability to arrive at as many possible solutions as possible for any given problem. The two actions of critical thinking decision-making and problem-solving are two skills of critical thinking (Facion, 1990) contain creative thinking; creative thinking is reflected in a decision and solution that are non-traditional and better than previous decisions. When you decide, you use different alternatives, distinguish between them, and finally choose the best decision; when this option is new and suitable, the resulting idea or ideas are creative. Even in a problem-solving situation, it may be that the new solution is not traditional, this solution is considered creative.

Personality or character is the general quality of human behavior. There are different definitions of the concept of "personality." Carl Rogers uses the concept of "self"; Rogers sees the self as a subjectively organized entity that affects the person's experiences and shapes his life. Sigmund Freud described the personality structure as consisting of three components - the unconscious, the ego, and the superego. Sternberg (1986) argues that the critical thinker is ideal, focusing on what people can do under the best circumstances. Studies on the subject reveal psychological traits that characterize people who think critically. Ko & Ho (2010) examined the tendencies of healthcare professionals in Taiwan (Ku & Ho, 2010). Three personality factors emerged: (1) systematic and analytical, (2) curiosity and conversation, and (3) maturity and skepticism. This means that critical thinkers are concerned with the truth, which is a critical thinker's quality (Facion, 1993). In a study of Giancarlo, Blohm and Urdan (2004) examined the relationship between critical thinking and personality traits. They used a large sample. The subjects were middle school students from the United States. They found four characteristics

for students who think critically: 1) orientation to learning, 2) creative problem solving, 3) mental focus, and 4) cognitive integrity-

The researcher concludes that This connection between critical thinking and these concepts affects the psychological aspects of the learner and the teacher during the intervention program aimed at changing and developing processes of occurrence of critical thinking in the learner and the teacher as a guide to critical thinking.

### **Critical thinking and change in psychological aspect**

In this research, the researcher defines critical thinking as an intellectual strategy and "a means of change" (Paul ,1993). Critical thinking is a means of changing a person's situation; this situation does not allow a person to orient himself to a different reality that allows him to change in beliefs and egocentricity, values and rules, and norms that block the individual from intending to live in a different reality that allows a change in beliefs, values, norms, and egocentricity that blocked his progress before. During these actions, critical thinking processes occur.

Critical thinking is a higher-order mental function influenced by social factors and performed within a social context. Critical thinking abilities and tendencies are given to learning (Facion, 1990), improvement, and change over time (Kennedy, 1991). There is no particular or fixed age for development that is willing to learn complicated thinking methods (Slvia, 2008).

### **Developing cognitive skills and critical thinking,**

Developing cognitive skills and critical thinking, Dillenburg (1996) claims that this idea is related to the tradition of Vygotsky (1972), the socio-cultural theory that relies on the cognitive theory of Piaget (1972). Both approaches emphasize social interaction, contributing to the occurrence and change of critical thinking. Critical thinking is mixed with responding to others during discussion in a constructive "constructivist" way (Bachon, 2000; Billin (1999; Abrami, 2008). Some Factors influence coaching sessions during teaching. Especially the teacher and his attitude and ability to deal with the formal curriculum and its adaptation to learners through the method and strategies he uses for this purpose (Zelberstein, 2008). Developing critical thinking skills requires practice to raise awareness, inattention, and critical thinking attitudes; these will allow students to practice out of a motive and goal to develop critical thinking skills and inclinations. This research examines the development of critical thinking and the change in the sociopsychological aspect of the learner.

### **Critical thinking education is different from traditional education.**

Critical thinking is not our natural way of thinking. most of us are never aware of our brain's metacognitive operations, conceptualizing or synthesizing. Instead, we rely on habits, patterns, and skills from past experiences to understand and interact with the world.

Critical thinking is related to three factors, attitudes, knowledge, and thinking abilities; these factors precede the occurrence of critical thinking. According to this, the educator and learner must have the desire and positive attitudes. Each of these components is necessary for

critical thinking. The question that arises is: How does critical thinking occur, what are the conditions that enable its occurrence and empowerment? Which characteristics of the actual model (Zelberstein, 1984: 2008)?

Lia (2011) Claims that all students have different abilities to develop critical thinking. Therefore, the goals of the sessions in the classes must aimed at empowering and cultivating the tendencies of critical thinking among all students participating in the study (Abrami, 2008: Ennis, 2011: Facion, 2013: 1990: Abrami, 2008: Paul, 2004). Facione, suggested that there are two main goals for teaching critical thinking, the first is to develop the two components of critical, cognitive, and effective thinking of the learner. The second is to educate students as critical thinkers using methods and strategies to practice critical thinking while focusing on developing abilities/skills and tendencies through training methods and using strategies that contain critical thinking skills (Facione ,1990); these goals indicate that the education of critical thinking is different from traditional education because it emphasizes and focuses directly and explicitly on the empowerment and development of the two components of critical thinking, and Approaches and methods to teach critical thinking.

Two basic approaches to teach critical thinking, the first, as general skills, in a separate course, the second to teach critical thinking as a specific field of knowledge and combining the skill of thinking with the content taught within a specific area of knowledge (Ennis, 1987: 2011, Paul, 1993: 2006: Facion, 1990: Division, 2006). Abrami (2008) pointed out that it is possible to teach critical thinking using four primary method, and these are: First, **general method**, the basic idea of this teaching method is to teach the skills and tendencies of critical thinking as a separate study unit in a different course (Ennis, 1989); the guiding idea in this method, that critical thinking skills, and abilities can be developed, generally by the discourse around learners' problems or reference to an article or text by chance. not just in a particular field of knowledge. Second, **the immersion** method is like the infusion approach; the student intervenes powerfully in the subject being studied. The Tendencies and skills of critical thinking is also seen as part of the content taught. Still, critical thinking instruction in this method is not explicit. In other words, skills and critical thinking abilities are not the focus for direct and explicit teaching, but students should acquire these skills while naturally engaging with the subject being taught (Ennis,1989), a mixed approach is made explicitly, combining elements from the general method and elements from the infusion method. Several thinkers support this method (Facione (1990: Ennis (1989: Paul, 1992: Kennedy, 991).

Third, **Mixed Method** focuses on critical thinking skills and teaches them directly and explicitly; in this method, thinking skills are also focused on non-curriculum content, random texts, or content from the field of the curriculum; Kennedy, and colleagues (1991), recommended using the mixed method because there is no better and preferred method over another. Wong (2017) argues that the Mixed approach is the most effective in improving students' critical thinking ability. Fourth, **The Infusion** method, Swartz, and Parks ,1994 Ennis ,1989 and Abrami, 2008) argued, this approach occurs during the curriculum, and combined with the content studied. The infusion method enables the development of critical thinking because teachers teach them through direct and explicit instruction. are the focus and focal point throughout the lesson;

on the other hand, the specific field of knowledge is also important. The interaction through training sessions that focus on critical thinking allows students to understand the basic principles that guide the subject's understanding using training. That allows the use of It also allows for the development of principles and methods for understanding the sessions subject and understanding the methodological principles of a field of knowledge that are the core of logical thinking and making a judgment (Facione, 1990). The Infusion Method, receiving the second ranking in terms of efficiency and effect in teaching critical thinking after the mixed method (Abrami, 2008). The researcher in this study choice the infusion approach

**Two theories discuss the change in the sociopsychological aspect of the learner.**

First, the Social-cognitive theory (Bandura, 1960) became a theory called the social learning theory (Bandura, 1986). The social cognitive theory holds that learning occurs in a social context with a dynamic and mutual interaction of the person, the environment, and the behavior. The theory emphasizes social influence, the influence of the external reinforcements of the educators and the society surrounding the learner. The learner considers the unique way people acquire and maintain behavior, considering the social environment in which people perform the behavior. The theory considers a person's past experiences, determining whether a behavioral action will occur. Second, the theory of planned behavior (Ajzen, 1991) deals with changing attitudes towards critical thinking. Our attitudes affect behavior because of the decision-making process. Four factors influence decision-making: attitudes, subjective norms, and a sense of control. A researcher points out that attitudes will only lead to behaviors if we perceive the behavior as something within our control.

To know and understand the student's thought processes and how the thinking processes affected the psychological aspects of the students, the researcher designed an intervention program containing training sessions in critical thinking.

**The intervention program.** The intervention program focusses in developing component of critical thinking, Skills, and tendency according to Facion definition (2013). And the change in the psychological and sociological aspect of the learner during learning processes. Six main skills and sub-skills of critical thinking (Facione, 1990).

(See table below)

	Skill	Sub-skill
1	Interpretation	(Categorization, Decoding Significance, Clarifying Meaning)
2	Analysis	(Examining Ideas, Identifying Arguments, Analyzing Arguments)
3	Evaluation	(Assessing Claims, Assessing Arguments)
4	Inference	(Querying Evidence, Conjecturing Alternative, Drawing Conclusions)
5	Explanation	(Stating Results, Justifying Procedures, Presenting Arguments)
6	. Self-Regulation	(Self-examination, self-correction)

*Tabel shows the Six main skills and sub-skills of critical thinking (Facione, 1990)*

**The Affective components** and the tendencies of the person who thinks critically (Facion ,2013), are:

inquisitiveness regarding a wide range of issues, concern to become and remain generally. Well-informed: alertness to opportunities to use critical thinking, trust in the processes of reasoned inquiry, self-confidence in one's own ability to reason, open-mindedness regarding divergent world views, flexibility in considering alternatives and opinions, understanding of the opinions of other people, fair-mindedness in appraising reasoning, honesty in facing one's own biases, prejudices, stereotypes, egocentric or sociocentric tendencies, prudence in suspending, making, or altering judgments, willingness to reconsider and revise views where honest reflection suggests that change is warranted. the clarity in stating the question or concern, orderliness in working with complexity, diligence in seeking relevant information, reasonableness in selecting and applying criteria, care in focusing attention on the concern at hand, persistence through difficulties is encountered, precision to the degree permitted by subject and circumstances (Facion,1990).

### **Model for developing critical thinking**

According to the literature review, the researcher constructs a model which contains several steps:

First, Thinkers suggested that the teaching of critical thinking is different from traditional teaching (Facion, 1990, 1987: Paul: 1993: 2004: McPeak: 1981: Lipman, 1988) the researcher designed teaching differently from traditional education and routine lessons.

Second, Thinkers have suggested the importance of a culture of critical thinking in the classroom. This culture is characterized as a "thinking community. (Tishman, Perinks & Gay, 1996; Horpaz, 2005; Moon, 2005). The researcher designed a comprehensive classroom culture of thinking that would support students' critical thinking processes. This culture is characterized as a "thinking community", in each session, the teacher referred to several elements and explained them, such as the nature of the task, use of guiding instructions, explanation of the level of challenge, explanation of the nature of relationships: reference to group size, tools, and role definition, learning norms, collaborative spirit: individual identification in the group, devoting time to developing skill and thinking tendencies.

Thierd, Thinkers discussed the importance of using diverse and different strategies to educate critical thinking.

(Zelberstein ,2008: Ennis, 1989: Abrami, 2008). The researcher adapted curricula to learners using the method and strategies used for this purpose, which affected learning activities using the infusion method.

Fourth, Thinkers discussed the importance of using background knowledge for developing critical thinking (Lia, 2011). the researcher used Texts as background knowledge; the training sessions' questions and assignments focused on a knowledge background (articles from the discipline and the course syllabus)



## **Intervention program**

The research was conducted in the teaching theory course. The classical curriculum of the Teaching Theory course contains the basic concepts in education and teaching and knowledge of various traditional and alternative learning and teaching methods. Knowledge of the factors influencing the teaching and learning process, the theory of Piaget, Bloom, Brunner, Dewey, and Gardner Usable, Knowledge of types of educational goals, comprehensive goals, specific goals and operative goals, the influence of Philosophy and educational psychology on teaching theory, teaching methods, learning methods and approaches, the factors that influence the teaching-learning process, the organization of the learning environment, and classroom climate.

According to the previous paragraph, the course of teaching theory aims to learn the content of ideas and concepts of topics, so teaching and learning critical thinking will be through the method of immersion (Ennis, 2011); this method focuses on learning content, during learning, learners develop their thinking according to their ability and their tendencies to think about the issues around them. This type of traditional teaching does not focus on developing the skills and tendencies of critical thinking. The researcher's experience in her work as a lecturer found that there is difficulty in realizing critical thinking processes as a result of the immersion method accompanying the actual curriculum; Ennis (1989:2011) and Abrami (2008) pointed out that it is possible to teach critical thinking using four primary methods and these are: the general method, infusion method, immersion method, and mixed method (Abrami et al. 2008; Ennis 1989) in the current study the researcher used the infusion method, this approach occurs during the curriculum, and combined with the content studied.

### **Using learning strategies,**

People's way of thinking is complex and different from each other. The empowerment of critical thinking is based on the lecturer's attention to students during the dialogue and when students respond to and can evaluate their learning process (Kuhn, 1999); this attention allows students to be at the center of learning activities, allowing them to develop his understanding, knowledge, and thinking (Dewey, 1972: Brooks & Brooks, 2005). These ideas suggest that critical thinking can be taught and studied by collaborative learning (Davidson, 1998; Sobkowiak, 2016). Therefore, there is a need for diversity in teaching methods and the use of diverse strategies to achieve the model's goals (lia, 2011). In this research the strategies were used, are Individual learning, small groups, "Collaborative learning" Discussions and debate around topics and ideas these are explicit teaching, reading, and writing, a concept map. Asking questions, educational atmosphere, and encouraging climate. clear goals, and learning language of thinking (1987: Paul: 1993: 2004: McPeak: 1981: Lipman, 1988 Ennis, 2011: Facione, 2013: 1990: Abrami, 2008). Each of the two individual and cooperative methods complements each other (Dewey.1938).

### **Activities and Tasks**

After reading the texts and background knowledge, the students were asked to perform practice tasks and address questions based on the texts they read. The training tasks focused on understanding the knowledge of the content in the course and performing skills and developing

critical thinking tendencies. The researcher set several questions for the students to practice in each lesson. These questions are based on Socratic questioning, the Kuhn model (1999) and Metacognition.

Socratic method is a systematic method of disciplined questioning used to distinguish between what we know and what we do. To explore complex ideas, to get to the truth of things, to develop issues and solving problems, to reveal assumptions, to analyze concepts, and to follow the logical consequences of a thought. This method is most often used in the form of timed discussions about assigned material, but it can be used daily by incorporating the questioning process into your daily interactions with students. Paul & Elder (2007), argue that The Socratic style of questioning encourages critical thinking. These questions contain the levels of Bloom taxonomy.

Kuhn's model (1999) presents a straightforward method according to a thinking sequence. The model consists of three forms of meta-knowing. First, Metacognitive or Propositional knowledge is defined as knowing that 'such-and-such is the case' occurs with declarative knowledge (Ryle, 1949; Scheffler, 1965). Second, meta-strategy or Procedural knowledge, meaning 'knowing how' to do something (knowing how to analyze, knowing how to swim, etc.; see (Everitt & Fisher, 1995) is related to possessing a skill (Scheffler, 1965). Third, epistemological thinking, the term 'personal epistemology' or 'epistemological belief,' is defined as an individual's views of the nature of knowledge and knowing.

To develop a person's critical thinking, one should use "metacognition" thinking about thinking, "and thus the person thinks to make his thinking better (Paul, 1993, p. 91). This means, one must use metacognition, thinking about thinking, thinking about action, and thinking about knowledge, these strategies allow the application of critical thinking processes and the development of critical thinking. Researcher's definition of Metacognition is thinking about thinking at the different levels of thinking, from simple thinking to complex thinking, that enables a change in thinking through evaluation and making decision for a change in the execution of thinking, action, or behavior. Therefore, metacognition is a necessary process in all the stages of thinking and learning which needs to be nurtured among students (Ajzin, 199). The researcher developed questions and learning tasks which allow students to perform metacognition operations in each question.

**Training tasks and questions,** the researcher formulated questions. Each question challenged the students to offer a Level of critical thinking in all the topics and articles in which the study took place, and these are:

2. Draw a graphical map showing the connections between the ideas of text content!
3. What is personal knowledge around the subject article?
4. What is your opinion on the subject? What is your position on these views? Why do you think that way?
5. What would you do differently today after you learned about this subject?

6. Is It possible to develop workshops and study assignments that enable the satisfaction of the needs of the student according to Maslow? Explain how?
7. What are the questions that arise in your mind after you have learned the material?
8. After completing the course's tasks, can you describe the change in your personality, emotions, thoughts, and motivation?
9. Can you describe at least three major processes that have taken place during learning?
10. Is the opinion of Usable regarding meaningful learning correct; Explain why you think so?
11. Give an example from your experiences as a learner according to the principle of meaningful learning!
12. What are the ideas you learned from the content of the article?
13. Do you remember experiences of learning in school-related to this article?
14. Is this article important for reading, what contributes to your future work as a teacher?
15. What do you think of Skinner's reinforcement theory? Will you use it in your future work, and why?

### **The role of the teacher is mediator**

The teaching of critical thinking by intervening allows for rich learning experiences because of the role of the teacher and the satisfaction of suitable opportunities (Facion ,1990 Blake, 2005; Brookfield, 2012).

Mediation is an important and basic feature of the educator who develops critical thinking. Bandura (1986) referred to four mediation processes to cause a change in the teaching process and imitate the example presented to the learner; these mediation processes show the psychological qualities and aspects of the student and the educator. They are: First, Attention: the learner needs to pay attention to the behavior and its consequences to create a mental representation of this behavior and imitate it. Second, Remembering the behavior: you can pay attention to the behavior, but you don't always remember it, which, of course, prevents imitation; the teacher planned the teaching in a way that attracted the students' attention, allowing the learning material to be remembered for its understanding and internalization, Third, Reproduction, it means the ability to perform the behavior that the model demonstrated. But this is not always possible. Our physical ability limits us; even if we wish to reproduce the behavior, we cannot. Fourth, Motivation, the desire to perform the behavior, is related to punishments and rewards. If the reward exceeds the learner's cost, the chance of imitating the behavior will be more substantial. The teacher was aware of the psychological aspects related to the behavioral consequences of the students when they are rewarded after completing the learning; the educator was using reinforcements that satisfy (see Figure (1)

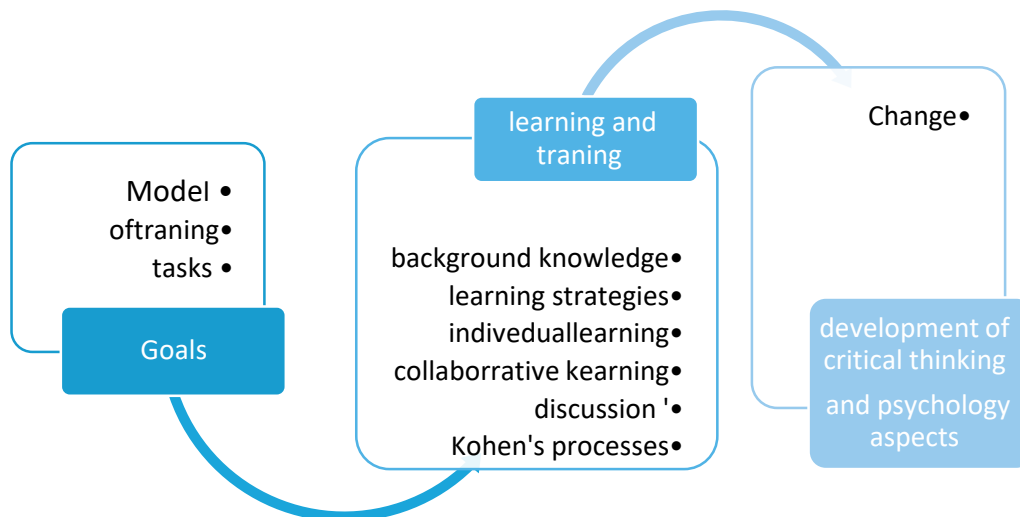


Figure (1) shows the processes of the change during training tasks.

### Method \ action research,

The researcher used qualitative action research to examine the quality and change process of critical thinking during the sessions (Creswell, 2009; Strauss and Corbin, 2008). The current research is research in itself and is not complementary to quantitative research (Johnson, 2012). The researcher is the leading research tool directly involved in the activity investigated in the current study. The teacher is the researcher, and the subjects are his students. There was a combination of three types of action research. The positivist is classic action research that examines theories relating to the impact of intervention programs on the development of critical thinking and change processes (Abrami, 2008; Ennis, 2011), an interpretive one that focuses on local factors, what happens during the training among the students, and a critical one whose goal is to make a change in the actional curriculum in teaching planning and the actual curriculum.

### The position of the researcher is insider researcher

The researcher has self-reflection and a reflexive approach during teaching-learning process; these qualities allowed him to identify and articulate her positionality; the researcher disclosed her position in the current research as an insider researcher (Cohen et al., 2011; Grix, 2019).). she researching his class with an internal perspective, considered one of the groups being studied which makes it easier to ask questions that enable the collection of information and to understand the language of the learners and non-verbal cues that enrich data and the construction of knowledge during the analysis The researcher has self-reflection and a reflexive approach during the ongoing process; the researcher was a flexible and critical thinker, investigated the learning process of the participants in the study; she was reflexive and identified the change in the process. The teacher explored his ways of working in the classroom and how their students learned (Feldman & Minstrel, 2000).

The Disadvantages of an insider position is the bias, in the current study, The researcher tried to achieve neutrality " empathetic neutrality " be objective to stay away from bias and subjectivity in collecting the data and analyzing it (Ormston et al., 2014).

## **Sample**

The sample contains 40 students who practiced all the training tasks that contained the model training. The research was conducted in the teaching theory course in one semester first year at the college.

## **Purpose.**

The purpose of the current qualitative research is examining the quality and change process of the occurrence of critical thinking and how the occurrence of critical thinking affected the psychological and social aspects of the learner, such as skills attitudes and attention among students. during the training sessions in the class. in order to achieve this goal, The researcher formulated **three** questions for collecting the qualitative data. These are :

### **Research Questions,**

1. what is the contribution of the critical thinking training tasks among the students?
2. How do students perceived and describe the change in their learning process?
3. How do students perceived the characteristic of the teacher during the intervention program?

**Tools**, this research aims to change and improve the educational work of the groups and participants by understanding the meaning of creation and personal self-reflection, for these two qualitative tools were used, first, observations, participant observation, and external observation; second, focus group with a semi-structured interview.

### **participatory observation and non-participant**

Two types of observation were used in the present study, participatory observation and non-participant observation (Creswell, 2007:2014).in participatory observation the researcher was participant-observer, the researcher participated in the group's activities while also observing the group's behavior and interactions during learning and dynamic interaction between the learners. The goal of this observation is to gain a deep knowledge and understanding about the process and the quality of change, and practices among from an "insider" perspective. She has a very good rapport with the respondents. she has a very close primary relationship with the group members. Because of this she can participate in all activities from she was able to interpret better the situation than a non-participant observation. Another type of observation, the non-participant observation used; the researcher tried to observe the study participants without they know that she is observing them. to understand a phenomenon by entering the community or social system involved, she staying separate from the activities being observed. in non-participant observation, the objectivity or neutrality can be maintained. The researcher in this type of observation gives a detached and unbiased view about the group. In the non-participatory observation of the students, they will be more on the questions and express their opinions more conveniently and anonymously. The purpose of the use of two types of observation is to gain deep knowledge and understanding to answer the two questions of the research chosen (Marshall & Rossman, 1989)

### **Focus group and semi-structured interview.**

In this technique, the researcher used interviews involving a learning group of students who were asked their views. The focus group technique allowed the researcher a rich understanding of the experiences, beliefs, and thoughts of the study participants through an interview that was not wholly structured (Flick,1998). The researcher paid attention to dynamics not expressed in words or body language to explore and clarify participants' beliefs, opinions, and views. The interactivity of focus groups allowed the researcher to obtain qualitative data from the participants; while the focus group was taking place, the researcher took notes about the discussion and interaction between the students for later note-taking to learn from the group. The present study used small groups (4-5 students). The focus group allowed the researcher to gather information. The researcher received descriptions and explanations from primary sources of information directly from the students participating in the study (Morgan,1988), this information was the data.

### **Data analyzing**

The students' answers to the questions were the data of the research. To analyze the data and answer the two questions, the researcher used the Tomas method (2006). The researcher used Thomas' five steps (2006) to analyze the data. These are:

First, she prepared data in the files. Second, she carefully read the hard text with comments and coded several times to gain and link understanding to the content and topics exposed within the text. Third, she created categories and themes identified and defined throughout the process from the hard text in real expressions; the coding for categories and themes was in the matrix for further analysis. Fourth, she Reduced the number of categories. Fifth, she merged between overlapping categories and searched for conflicting perspectives and new perspectives and insights (Thomas, 2006).

The data analysis revealed that students changed their attitudes and intentions and developed skills and tendencies of critical thinking during the training tasks. in addition, they referred to the teacher characteristics during training tasks.

### **Findings**

The analysis of the findings is divided into two sections. The first theme relates to the psychological aspects that reflect the changes in the learner's personality. The second theme relates to the psychological aspects of the teacher who guides students to learn and develop critical thinking.

#### **The first Theme,**

#### **the psychological aspects that reflect the changes in the learner's personality**

These are, Self Confidence, Social Adaptation, Self- Acceptance Content Analysis, Organization of thoughts and Decision-Making.

**Self Confidence-** Facion (2013) defined critical thinking as confident in its logic because it relies on a criterion, open as a will that opposes generalizations, and emphasizes diverse explanations and possibilities; critical thinking is flexible thinking (Costa, 1991).

Students during the lessons developed a sense of self-confidence (Facion, 2013). This Attribute based on the following statements:

From the researcher's observation of the groups, it emerged "during the discussion, and the students listened. All the students in the group were listening to the talking student. She raised her opinions and positions confidently. "From the document analysis, student Minas said: "During the lesson, I felt I was learning independently, and I started to connect the content and concepts with the diverse life issues. Through the learning process, I learned how to analyse the subject into small units. Lina said: "Self-acceptance gives self-confidence and satisfaction that gives the need for perseverance to achieve goals and self- development. "Lina said, "I agree that self-acceptance causes the realization of goals for success and adaptation which causes a change in the attitudes of the individual in a way that serves the society self-acceptance causes self-confidence. Lina said: "I have become aware of combining personal experience and social reality, and I feel able to express my opinions."

The researcher concludes that the students developed self-confidence in their thinking and learning, became aware of their experience and social reality independently, listened to other students, and had flexible thinking. These conclusions related to Facion's view (2013); he defined critical thinking as confident in its logic and critical thinking as flexible thinking (Costa, 1991).

**Social Adaptation-** Costa (1991) defined critical thinking, open thinking, as a will that opposes generalizations and emphasizes diverse explanations and different possibilities, in this sense, it is flexible thinking that allows for change and adaptability, Costa (1991) mentioned flexibility as one of the five tendencies in his taxonomy. During the lessons, the students developed social adaptability (Costa, 1991; Facion, 2013; Ennis, 2011); the students described this development using these sayings:

During the group observations, the researcher's notes showed that Samia said, "I feel able to adapt more within the group and outside the classroom as well.

"From the document analysis, student Shadia said: "This task leads to understanding the text. We have learned how to accept the attitudes of others to perform a task; social adaptation is important to develop on certain issues." Noel said: "I began to think about changing the thoughts, attitudes, and behaviors appropriate to norms and traditions to cope and adapt in a group to realize goals. Rowan said: "In performing the task, I felt I was thinking all the time, and I could set a social perspective and form a social opinion, which is important. I think the person needs to adapt to social norms, but he has to decide on personal issues."

The researcher concluded that these sayings showed that the change in students' attitudes was affected by the training tasks; this related to his view of Paul about critical thinking as a " means of change" (Paul ,1993). Students changed their thoughts, and attitudes and behaviors they developed social adaptability (Costa, 1991; Facion, 2013; Ennis, 2011).

### **Self- Acceptance**

Facione (2013) defined critical thinking as focusing on research and performing thought processes out of purpose and will; these processes cause progress, constantly investigating

accurate results according to the conditions sought by the researcher. During the training, the students developed the ability to accept themselves and described it using the following statements:

From the analysis of the documents, Lina said: "Self-acceptance gives self-confidence satisfaction that gives the need for perseverance to realize goals and at the end of the realization and development of the self. "From the document analysis student, Noel said: "I mean a change appropriate to the work situations and teaching requests, to do that. I must understand myself and accept my abilities and develop them accordingly, I agree with the saying: 'Self-acceptance causes self-development.'

During the training, the students Learn to deal with the learning processes, understand their abilities, and try to develop them. These elements in the students' behavior reflect self-acceptance.

The researcher concluded that during the training, the students became self-acceptance. They knew their abilities and tried to open up; this situation described the same passion; he described critical thinking as investigating itself and carrying out thought processes. These processes lead to its development, this situation related to the facion view's ' that critical thinking as focusing on research and performing thought processes out of purpose and will; Facione (2013)

### **Content Analysis –**

Facion(2013) argues That training sessions contributed to the students being more focused, reading and analyzing the content and material. The students learned to read and interpret the learning content during the training.

This contribution is based on these statements. From the document analysis, student Ward said: "I felt I wanted to be more focused to read and analyses the material accurately. Student Rana said: "Learning in this way helps us in organizing the content, ideas, and concepts; these sessions give the individual freedom of thought., student Minas said: "I started to link the content and concepts with the topic of teaching, through the learning process I learned how to analyze the topic into small units."

The researcher concluded that the training sessions enabled students to understand their studied topics, develop reflective ability (Dewey, 1939), and allow coping and adaptability to the new learning content (Ennis, 1982).

**Organization of thoughts,** Ennis (1982:2011) argues that critical thinking is logical thinking that occurs according to organization and logic, so it is systematic, the students during the training in the lessons developed an ability to organize and arrange their thoughts, the students described the organization of their thoughts in these statements: From the analysis of the documents, Student Rana said: "It helps us organize the content, ideas, and concepts; this operation gives the individual the freedom to think and the opportunity to organize his thoughts." From the document analysis, student Dolat said: "Help me organize my thoughts



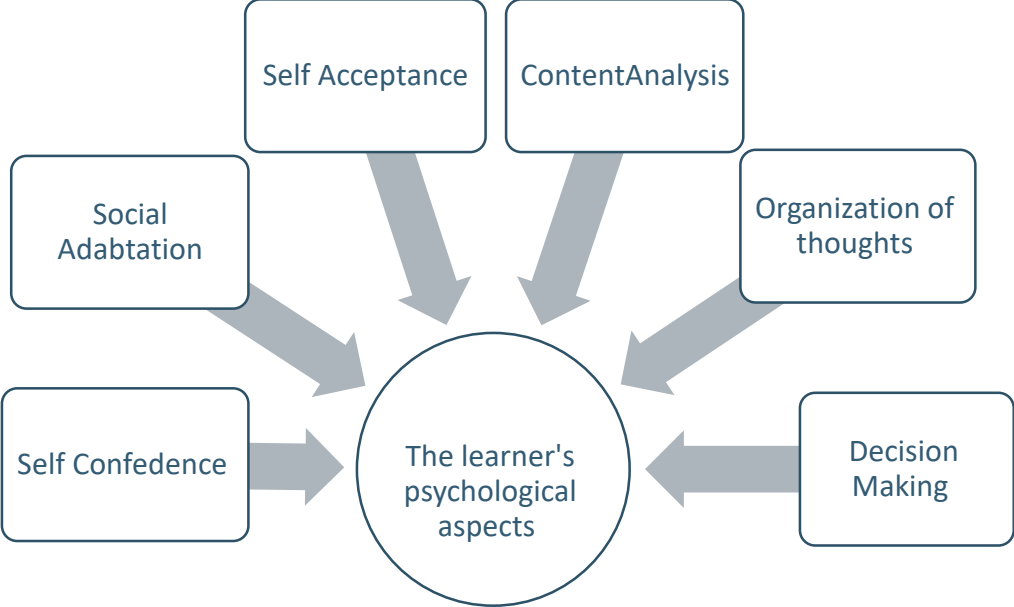
during learning. "Student Ayat said: "I discovered my ability and knowledge; from this session, I learned how to organize my thoughts."

The researcher concluded that the training tasks helped the students arrange the study content and ideas logically and reveal their abilities during the learning, this idea related with Ennis view, that critical thinking is logical thinking that occurs according to organization and logic, so it is systematic (Ennis ,1982:2011).

**Decision-Making** Ennis (2011) argues the student who practices critical thinking develops the ability to make decisions, the students participating in the study describe the development of their ability to matke decisions in these statements: From the document analysis student, Rowan said: "I think the person needs to adapt to new situations but must decide for himself on personal issues. "From the document analysis, student Alaa said: "To perform the assignments, my personal decision is to participate in the opinions of others when making the decision. From the document analysis, student Dina said: "I learned when making a decision, I must consider my opinion well, and to do so, one needs to hear others' opinions."

The researcher concludes that the training sessions contributed to the student's understanding of the importance of making decisions independently. According to their opinion-making, a decision should take into account the personal opinions as well as the opinions of others. this meaning related to Ennis view, that the student who practices critical thinking develops the ability to make decisions Ennis (2011).

Figure (2) shows the learner's (psychological aspects)



**The second theme, The psychological aspects of the teacher who educates critical thinking**

Brooks & Brooks (2005) argued that when a teacher encourages students to participate in a dialogue Asking questions, this provides students with time for understanding, creativity, and application helps them develop critical thinking (Moon, 2005) and allows them to be at the Centre during their learning (Dewey, 1972). Students described teacher behavior; these descriptions were, a guide and mentor, bay attention and listening.

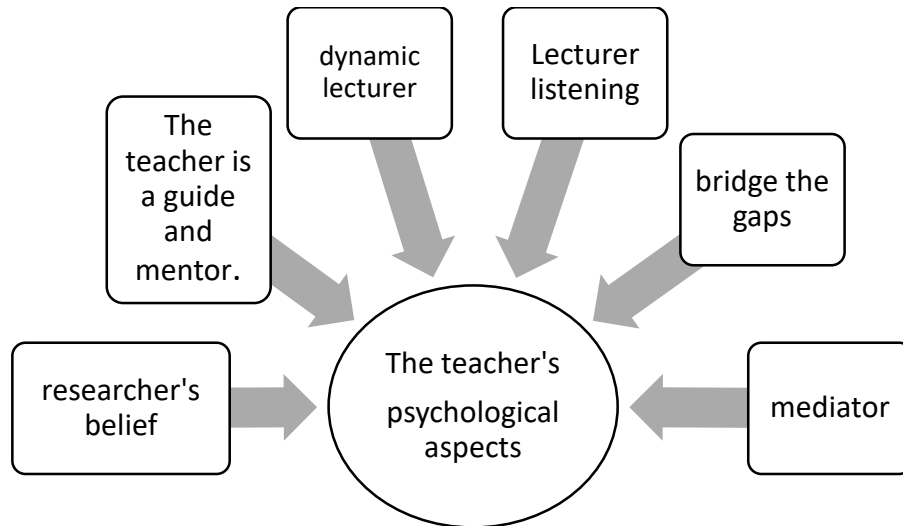


Figure (3) The psychological aspects of the teacher who educates critical thinking

#### **Teacher is a guide and mentor.**

This category was built based on the following statements: From the researcher's observation of the groups, "the researcher made sure that the learners would learn in the constructive method and build their knowledge and understanding. An analysis of the documents revealed that student Malach said: "I learned that there are other methods of transferring the material to students in various methods. Rabab said: "During the study, I had the ability to understand the material without the intervention of the instructor, attractively and enjoyably student Hanan said: "After the teacher explained how many points, I felt confident in applying and writing without fear or hesitation.

An analysis of the documents revealed that student Dawlat said: " all thanks to the lecturer's dynamic approach."

The researcher concluded, these findings suggest that a result of the teacher's guidance and explanation allows for bridging the gaps in understanding the material and provides the student with an understanding of how to deal with the material and understand it (Brooks & Brooks, 2005: Bandura,1986)

**Lecturer attention and listening**, this sub-category was built based on the following statements: The researcher's observation of the groups revealed: "The researcher seems to be listening in the third ear to the learners' statements and recording them as quickly as possible during the lesson or at the end of the lesson. This matter stems from the complexity of the researcher's role." The researcher's observation of the groups revealed: "Through the lecturer

who prepared the learning atmosphere that allows all students to think while learning, this allows for academic learning. And I felt a process of transition from school to academic studies. I hope we continue according to this method."

The researcher concluded, that the intervention program contributed to the empowerment of critical thinking because of the lecturer's attention; she listened to the students during the discussion, the inquiries about the difficulty, and when the students answered their learning process and appreciated it, this attention allowed the student to be at the Centre of learning action. This allows him to develop his understanding, knowledge, and critical thinking (Dewey, 1972: Brooks & Brooks, 2005).

### **Summary and Conclusions**

The study shows the impact of training tasks that focus on critical thinking on students' personality development; the students point that they change their attitudes and intentions about critical thinking (Ajzen, 1991) , This means that critical thinking is a "means to change," to move from a state that does not allow the individual to orient himself from his potential to another reality that allows him to change, change in beliefs, egocentrism, values, and rules that block the individual's progress During these processes, Paul calls this process "thinking about thinking" meta-cognition "(Paul, 1993: 2006, Blak,2009: Elder, 2007). The training tasks allowed students to practice critical thought processes; students became confident in themselves. This allowed them to learn consistently and willingly and realize personal and persistent goals in exploring additional knowledge and the ability to express opinions and attitudes to others (Facion, 2013). The students have become capable and in control of their learning process, the theory of planned behavior points to four factors that influence decision-making, attitudes, subjective norms, and a sense of control. The researcher points out that attitudes will only lead to behavior if we perceive the behavior as something within our control (Giancarlo, Blohm, and Urdan,2004: Ajzen, 1991).

The Training tasks allow students to develop the ability to understand their abilities, accept themselves, and understand the environment, and thus, they can change their attitudes because they become flexible; flexibility is a trait of a critical thinker (Costa, 1991: Facion, 2013). The student himself begins to rebuild it and progress according to his ability (Ennis, 2011).

Brooks & Brooks (2005) argued that when a teacher encourages students to participate in a dialogue and Ask questions, this provides students with time for understanding, creativity, and application, helps them develop critical thinking (Moon, 2005), and allows them to be at the Centre during their learning

These findings show that the teacher was a mediator during the lesson Bandura (1986). The training session allowed students to develop their critical thinking from the researcher's belief. The researcher believed all students have different abilities to develop critical thinking (Lia, 2011). Therefore, the role of the researcher is to bridge the gaps between the hidden curriculum, ideas, beliefs, and teaching through interaction with the curricular and learner texts. The researcher carefully explained the difficulties and provided appropriate learning opportunities for learners (Zelberstein, 2008: 1984).

The finding shows that students listen to one another while learning. The teacher uses stimuli to keep the attention of the students, the training tasks were challenge and attracted the attention of the students. The student paid attention and studied with a positive intention and attitude toward the subject being studied. The study tasks made the students decide how to offer them and how to participate in the classes. they changed their intentions and attitudes to the consequences of critical thinking (Ajzen, 1991). It is possible to strengthen and encourage the students' positive attitudes through the consequences of critical thinking, The teacher varied the learning tasks and repeats these actions so that the students paid attention, remember, and propose them, and imitate the model that was presented to them.

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