The Impact of the Training Sessions on the Development of Critical thinking among students who are trained to teach in colleges in the Arab sector In Israel.

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Abstract: This paper presents quantitative research which examines "The Impact of training sessions on the Development of Critical Thinking among Students Who Qualify for Teaching in Arab sector Colleges," the researcher manipulated the use of an intervention program to know the change in the critical thinking between the two points of time before intervention and after the intervention. And Conducted a Questionnaire pre and after the intervention. The study was conducted in four colleges and four classrooms; there were three experimental groups, and one is the control group. The research results raise the influence of the intervention program on the development of students' critical thinking and critical thinking community.

Keyword – Critical thinking, training sessions, Critical Thinking Community, Empowering critical thinking

Introduction

The current research problem is related to the college student's attitudes of who prefer to study according to the traditional method, the teacher's transfer of material. And they have limited usefulness and contribution in 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). The results of the TIMES and PRLIS 2011, 2013, and 2015 international assessment tests in the account and the 4-8 grades

indicate a gap in scholastic achievement among students in the Arab sector and students in the Jewish sector in Israel in favor of Jewish students (Bourboy, Manor, and Hattab, 2012: Winger, 2018: Blass, 2017). So, the researcher wanted to know the effects of training sessions on developing students' critical thinking.

Critical thinking

In the professional literature, there is a broad reference to the concept of critical thinking, and there are different definitions (MecPec, 1981, 2011, Ennis, 1985: Lipmann, 1991) that saw critical thinking as a natural trait. Critical thinking is good and positive thinking (Facione, 2006).

Critical thinking is associated with the term "uncertainty" and skepticism that guides the individual to ask questions; it is a natural trait. (1986: Ennis, 1985: Lipman, 1991), 1985). Critical thinking is reflective and used for scaffolding to overcome gaps in learning (Vygotsky, 1978: Moon, 2005). Contains values aimed at improving human functioning in security, health, and emotional well-being (Glaser, 1942 in Fisher 2002: Sternberg, 1986: Willingham, 2007: Dewey, 1933, in Fisher 2002: Moon, 2008). Critical thinking is related to other concepts, such as higher-order thinking, such as judgment and problem solving (Facion, 1990).

Elder, & Paul (2009) argued that critical thinking can be defined in several ways. In contrast, Lia (2011): Choy& Cheah, (2009) argued that there is a need for a common definition of Understanding the concept of critical thinking to define and explain it in educational work in a way that enables its teaching and learning. The Delphi team (Facion, 2015: 1990) determined both components of critical thinking, tendencies, and skills.

The Consensus Statement regarding Critical Thinking

Critical thinking is curious, habitual and persevering curiosity, well updated, because it is active all the time, is confident in its logic, because it relies on criterion, Open as a will that opposes generalizations, and emphasizes various possible explanations, Flexible thinking, fairly evaluates, uses evidence to explain how he or she valued the subject or idea, has integrity in handling his biases. Feasible selection of criteria focuses on research and performs thought processes with the aim and desire of those who focus, in the investigation of accurate results in accordance with the conditions sought by the research.

Critical thinking is good thinking composed of skills and tendencies (McPeak, 1981 Ennis, 1996: Faction, 1990: 2015). The skills are :(see table, 1)

Table (1)

	Skill and 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)

Source: contains six main skills and sub-skills of critical thinking (Facione, 1990).

Delphi staff agreed that any cognitive skill is associated with a mental tendency (Facione 1990a: 2013). The team determined the tendencies of the person who thinks critically, these are: persistence, focusing attention, flexibility, understanding, inquisitiveness, willingness.

Alertness, Honesty, fair-mindedness, seeking relevant. (See Figure ,1)

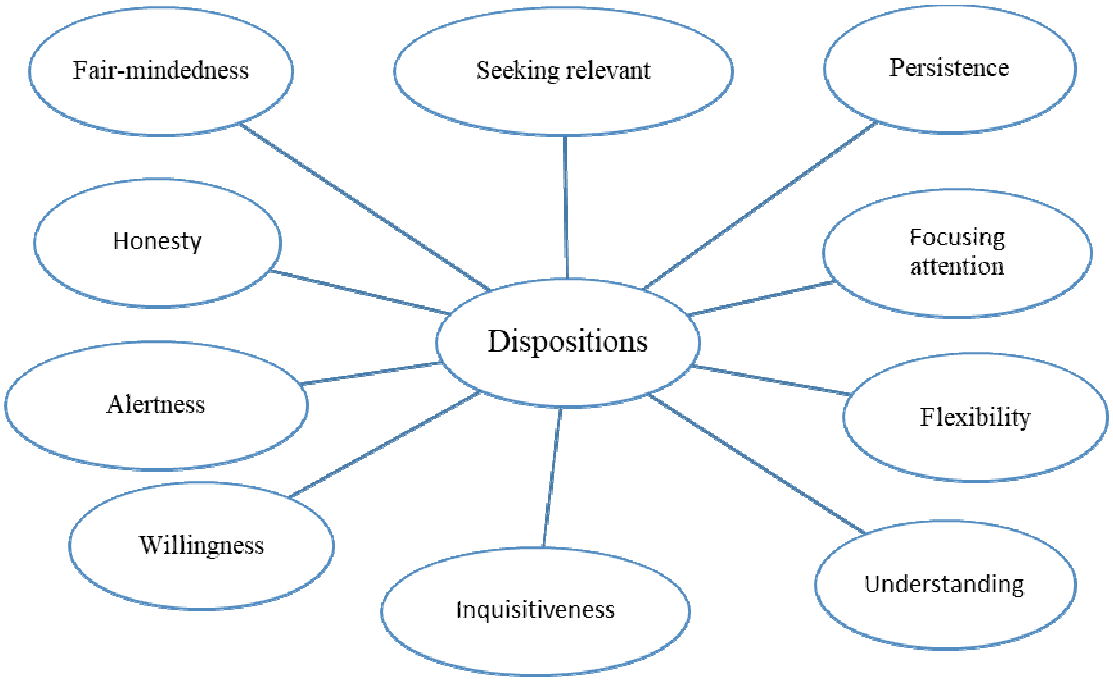

Figure 1. Dispositions of critical thinking as defined by the Delphi team (Faction, 1990).

Source: own.

The present study relies on the definition of the Delphi team, which reflects important features of critical thinking, which enable identification of the thinking processes and characteristics of the critical thinker and serve as a criterion for evaluating the learner's thinking.

Empowering critical thinking

Facione (1990) recommended that the teaching of critical thinking by intervening allows for rich learning experiences (Abram at al., 2008: Ennis, 2011). When intervening, we Can use diverse strategies such as collaborative learning and individual learning to apply clear goals; these strategies enable con tructivist learning (Blake, 2005; Brookfield, 2012), argue

that an open atmosphere characterized by high expectations guarantees the success and development of critical thinking. Brooks & Brooks (2005) point to the importance of constructivist teaching and learning and establishing clear goals to develop critical thinking (Facione, 2015: Ennis, 2011). In the present study, the researcher used training sessions containing clear goals, collaborative and individual learning and constructivist learning.

Intentional intervention and instruction for critical thinking enables the creation of a thinking community. The researcher in the current study assumes that the training sessions will result in the creation of a thinking community in the study groups (Tishman, & Perkins, 1993).

The research purposes – first, to exam the impact of training sessions on the development of critical thinking of students in teacher colleges from the Arab sector, during one semester in several subjects and disciplines; second, to examine the degree of change in the students' critical thinking between two points of time at the beginning of the course and the end of the course.

The research questions:

Do coaching sessions that focus on the skills and tendencies of critical thinking and the content taught enable students to develop their critical thinking?

Do coaching sessions that focus on the skills and tendencies of critical thinking and the content taught enable students to develop a thinking community?

Methods, Sample and Population

The study consisted of 151 participants Arab students in the process of being trained as teachers, first year. From four colleges. These participants were divided into four groups, three groups were experimental groups, and the fourth group was a control group, the study conducted in four colleges. see table (2) show the sambal research.

Table 2.

Show the sambal research.

First group	college (A)	41	Experimental group).	All Training sessions

Second group	college (B)	37	Experimental group).	Partial training sessions
Third group	college (C)	36	Experimental group).	Partial training sessions
Fourth group	college (D)	37	Control group	No Training sessions

Source: own source.

The critical thinking Questionnaire.

A critical thinking questionnaire conducted - This questionnaire examines the effect of the curriculum and training sesseions on the development of critical thinking between two points in time at the beginning of the course and after the instruction and use of coaching sessions, the questionnaire was constructed based on the theories that defined the components of critical thinking, (Facione, 2015:1993: Tishman, Jay &Perkins, 1993:) critical thinking consists of 18 sections, examining the cognitive and the effective dimensions of the critical thinking.

Management of the research

The researcher used A critical thinking questionnaire in two-point of time before and after the intervention.

Intervention and training session

Training sessions serves as a frame of reference that provides the framework in which teacher is supposed to translate pedagogical intention into the language of activities to close the gaps between curricular intentions and curricular practices, These coaching sessions contain learning content, formulated goals (Ennis, 2011) that need to be implemented through strategies and techniques that enable the construction of knowledge and understanding and thinking of learners) Brooks & Brooks ,2005), and indicate assessment tools to assess the occurrence of critical thinking. This goal should be clear for students to use the strategies to achieve this goal. The students learned from awareness and carry out processes thinking in parallel to critical thinking and critical thinking habits (Facione (1990). The training tasks focused on the empowerment of skills, and the thinking tendencies determined by the Delphi team (Facion, 2003) each task has a clear purpose and structure (Ennis 2011). The researcher took several steps in the management of intervention:

1) The use of the background of knowledge, the field of knowledge the use of the infusion approach as a condition for the occurrence of critical thinking (Willingham, 2007).

2) the use of the infusion approach Ennis (1989: Abrami, 2008).

This method combines the content learned with the criticality of critical thinking, which means that the content learned is important well as the skills and tendencies of critical thinking are important and when using this method, focus on the content and components of critical thinking during class (MecPck, 1990: Bailin, et al., 2002, Ennis, 1985: Jonas, 2007: Facion, 1990).

3) The training sessions were designed according to Kuhn's model (1999), which enables the occurrence of critical thinking and the change in knowledge.

4)) Learning Strategies - the students learned in small groups "Collaborative Learning," Discussion Topics and Ideas, and individual learning methods.

5) The role of the researcher is to bridge the gaps between the hidden curriculum, ideas and beliefs, and the teaching by interacting with the curricular and learner texts (Silberstein, 1984: 1984). rami, 2008: Wilson, 2000: Higgins et al., 2004: Facione, 1990: Mecpec, 1981: Moon, 2008).

Results\ Findings

Table 3.

The reliability in the critical thinking Questionnaire.

Cognitive thinking at a point in time (1)	Alpha Raw 0.404540	Low reliability
Cognitive thinking at a point in time (2)	Raw 0.898496	good reliability

Effective time thinking (1)	Raw 0.337557	Low reliability
Effective time thinking (2	Raw 0.781295	good reliability

Source: own.

The research hypotheses testing

First hypotheses -Coaching sessions that focus on the skills and tendencies of critical thinking and the content taught enable students to develop their critical thinking.

In testing the first research hypothesis, the results were obtained in Table No. (4&5)

Table 4.

The average change in the critical thinking, in the Affective dimension.

	Affective time-1		Affective time-2		Affective Change	
	Mean	Median	Mean	Median	Mean	Median
group 1	3.43	3.44	4.78	4.78	1.34	1.33
group 2	3.52	3.56	3.59	3.67	0.07	0.00
group 3	3.64	3.67	3.89	3.89	0.25	0.33
group 4	3.50	3.44	3.52	3.44	0.02	0.06
Kruskal-Wallis test			Chi-Square = 12.94			
DF = 3						
P-value = 0.0048			Chi-Square = 106.4			
DF = 3						
P-value < 0.0001			Chi-Square = 94.32			
DF = 3						

P-value < 0.0001

Source: Own.

According to the results in Table (4), the average change in the critical thinking, in the effective dimension in group (1), is the highest (1.34) in group (2) (0.07). (3) Is (0.25) and in group (4) is (0.02).

Table 5.

The average change in the cognitive dimension in all groups.

	cognitive1		cognitive2		Cognitive Change	
	Mean	Median	Mean	Median	Mean	Median
group 1	3.41	3.25	4.76	4.75	1.34	1.50
group 2	3.42	3.50	3.72	3.75	0.29	0.25
group 3	3.62	3.50	3.94	4.00	0.32	0.50
group 4	3.54	3.50	3.53	3.50	-0.01	0.00
Kruskal-Wallis test			Chi-Square = 5.65			
DF = 3						
P-value = 0.1298			Chi-Square = 97.32			
DF = 3						
P-value < 0.0001			Chi-Square = 80.32			
DF = 3						

P-value < 0.0001

Source: own.

According to the results in Table (4) the average Change in the critical thinking cognitive dimension in group (1) is (1.34), in group (2) is (0.29) in group (3) is (0.32) and in group (4) is (0.01). In the examination of the change that occurred during the study, differences were found between the groups in both dimensions - in both cases there was a large change in the group (1) relative to the other groups.

Summary: According to the-average change in (CT), on both levels, affective and cognitive, and in a comparison between the developments of the two dimensions in each group, can be seen. In group (1) in the Teaching Theory course, there was equal development on both levels. The development was on both levels 1.34, that is, and the training sessions had the same effect on the development of critical thinking on the cognitive dimensions and the affective dimensions. In group (2), in the Arabic language and literature course, the the training sessions influenced critical thinking at the cognitive dimensions better, which averaged the change (0.29) compared to 0.07 at the effective level. In group (3), in the mathematics course, the training sessions intervention program influenced the development of cognitive thinking a higher way (0.32) compared to affective thinking (0.25). In group (4), in the sociology course, the control group had zero effect on the traditional curriculum, and only in the diagram does the development of affective thinking appear very low (0.02)

The second research hypothesis, Coaching sessions that focus on the skills and tendencies of critical thinking and the content taught enable students to develop a thinking community. In testing the second research hypothesis, the results were obtained in Table No. (6)

Table 6.

The differences between the groups in the development of the thinking community (shows the finding)

Thinking Community

	Mean	Median
group 1	4.82	4.80

group 2	4.63	4.60
group 3	4.59	4.60
group 4	4.52	4.60
Kruskal-Wallis test	Chi-Square = 22.99	
DF = 3		
P-value < 0.0001		

Source: own.

According to Table (6), differences were found between the groups in the “Thinking Community " in Group (1) the average of development) (4.82). In group (2) the average of development (4.63) in group (3) the average of development is (4.59), in group (4) the average control group is (4.52)

Summary, and recommendations from the Kruskal-Wallis test Results, at the beginning of the study, no significant differences were found between the groups at any of the dimensions. At the end of the study, differences were found between the groups in both the affective and the cognitive dimensions. In the examination of the change that occurred during the study, differences were found between the groups in the "thinking community" variable. Group (1) received high values relative to the other groups. In this experimental group, the training sessions were transferred in a whole lesson and trained in critical thinking. The results indicate the effect of the intervention program and training sessions on the development of the components of critical thinking (Terenzini, Springer, Passarella, & Nora, 1995). The study raises the need to use an intervention program with special field learning components and use various strategies such as individual learning, collaborative learning, discussion, and formulating clear goals aimed at critical thinking (Facione, 2015: Ennis, 2011). The use of the infusion method enabled the development of the students' critical thinking (Brooks & Brooks, 2005). The field learning enables the development of both cognitive and effective because the field of knowledge contains facts, beliefs, attitudes, and correlative potential (Ben Peretz, 1995), which ensures the learner's reflection both in the

cognitive and the affective domains, (Ennis 2011: 1985: MecPek, 1981).The findings of this study reinforce the findings of previous studies in the field of teaching, empowering and developing critical thinking, such as: The study of Solon (2003), Ennis (1989), and Abrami (2008), Therefore, the important role of the colleges is to enable the student to develop the critical thinking that contributes to the ability of self-direction in the spirit of work and life, through the various disciplines and the lesson design, in the spirit of critical thinking directed at meaningful learning (Bandura, 1997: Abrami et al., 2008: Facione, 1990). The study has no limitations because using a quantitative approach. It uses a large sample and four groups with various area knowledge, which affects the development of critical thinking differently. The Challenges in Research that the study was conducted in four colleges .it was necessary to share more people in the courses they teach to conduct the research. For this purpose, the researcher turned to the heads of the colleges to ask them to carry out the research and direct it. The head of the colleges received the researcher's idea and referred it to the lecturers. She chose three lecturers who also work at the college she works. The connections between them were successful because the management partners had a personal connection with the researcher's colleagues, and thus the researcher overcame this challenge. So, at the beginning of the study, the researcher tried to explain to these lecturers the model of the research and the research requirement. The researcher had occasional contacts on WhatsApp if the lecturers as needed and at the lecturer's request. The researcher intends to conduct further research on the subject in the development of critical thinking. In high schools, middle schools, and elementary schools.

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Appendix

Appendix (1) The research questionnaire relies on professional literature. The researcher constructed this questionnaire; The Questionnaire sections were constructed based on the critical thinking definition of the Delphi team. This definition is comprehensive and Contains the two components of critical thinking.

First Section, the items (1-12) examine the cognitive component of critical thinking "the" skills abilities "of critical thinking, Interpretation, Analysis, Evaluation, Inference. Explanation and Self-Regulation.

The Consensus Statement regarding Critical Thinking skills (Facion,1990):

We understand critical thinking to be purposeful, self-regulatory judgment, which results in interpretation, analysis, evaluation, and inference, as well as explaining the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. CT is essential as a tool of inquiry. As such, CT is a liberating force in education and a powerful resource in one's personal and civic life. While not synonymous with good thinking, CT is a pervasive and self-rectifying human phenomenon.

Second Section, Effective dimension

This part contains sections 13-18 that examine the Affective dimension of critical thinking. Affective Dispositions (Facione 1990) be purposeful, inquisitiveness, well-informed, alertness to opportunities to use CT, trust, open-mindedness, flexibility, fair-mindedness, seeking relevant information focusing attention, persistence though (Facion,1990).

The **Consensus Statement regarding Affective Dispositions (Facione 1990)**

We understand critical thinking to be purposeful, inquisitiveness regarding a wide range of issues, concern to become and remain generally well-informed: alertness to opportunities to use CT, 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 though difficulties are encountered, precision to the degree permitted by subject and circumstances (Facion,1990).