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Iranian EFL Teachers' and Learners' Perceptions of the Principles of Critical Thinking: A Constructivist Grounded Theory Study

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ABSTRACT

The purpose of this qualitative study was to investigate the perception of EFL teachers and learners on the fundamental principles and constructs of critical thinking, the main characteristics of a critical thinker, and strategies for reinforcing critical thinking ability. Semi-structured interviews with eight EFL teachers and ten learners, who were theoretically sampled from three different contexts of public, private, and seminary schools in Sabzevar and Qom, Iran, were conducted using the constructivist grounded theory methodology (Charmaz, 2008). Using the MAXQDA software version 12, the data were analyzed based on the three levels of the open, axial, and selective coding of grounded theory. A model of critical thinking was proposed with ELT teachers' and learners' awareness as the core category and the characteristics of a critical thinker and strategies for reinforcing critical thinking ability as sub-categories. The results of the study revealed several pedagogical implications for EFL teachers to help their learners develop critical thinking skills, for EFL learners to think more deeply, solve problems better, communicate and collaborate more effectively, and for curriculum developers and syllabus designers to put certain critical thinking activities in textbooks and support in-service classes for teachers.

Keywords: critical thinking; grounded theory; perception, EFL

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Introduction

Nowadays, it is essential for educators to be aware of the concept of critical thinking and the characteristics or qualities necessary for being a critical thinker. According to Marin and Halpern (2011), the development of critical thinking skills is often considered as the most significant reason for formal education because the ability to think critically is essential for success in the contemporary world where the rate of new knowledge creation is rapidly accelerating. Nardi (2017) stated that "educators, parents, and opinion leaders often bemoan the lack of critical thinking in our lives, in our media, and perhaps most seriously in our schools" (p. 3). It seems that encouraging students to learn critical thinking skills has become a challenge for educators all over the world (Wang & Woo, 2010).

Previous researchers have tried to define critical thinking and describe various features of critical thinking such as dispositions, the abilities of a critical thinker (Ennis, 1993), and critical thinking skills (Facione, 1992). Each researcher considered these aspects separately and described them independently. However, all these aspects can be integrated and considered as the fundamental characteristics of a critical thinker.

The purpose of this study is to investigate the perceptions of Iranian EFL teachers and learners on the fundamental principles and constructs of critical thinking. Moreover, it attempts to explore whether Iranian EFL teachers and learners are aware of the central characteristics of a critical thinker. Finally, it tries to propose some significant strategies necessary to reinforce critical thinking ability in students. To achieve these purposes, the researchers of this study used a constructivist grounded theory methodology and proposed a model of critical thinking regarding teachers' and learners' perceptions.

The significance of this study, in comparison with other studies in the field of critical thinking, lies in the fact that there are two novelties in it. First, although all of the sub-codes under the "Characteristics of a Critical Thinker" illustrated in Figure 3 are represented in literature, the innovation of this study is reporting some extracts from teachers' and learners' interviews that show their perspectives in this field using grounded theory methodology. Second, although there were several studies in previous literature proposing various strategies for developing critical thinking (Yang & Gamble, 2013; Zhao, Pandian, & Singh, 2016), they considered only a few strategies. In this study, the researchers tried to provide a comprehensive source including different kinds of strategies reinforcing critical thinking ability in students based on the perception of teachers and learners.

Literature review

Although the concept of critical thinking was perhaps proposed first by Socrates over 2000 years ago, the American philosopher, John Dewey (1909, cited in Fisher, 2001) can be considered as the father of modern critical thinking tradition. He defined critical thinking as an active, persistent, and careful consideration of a belief or hypothetical form of knowledge in the view of the grounds which support it and the further conclusion to which it tends. Based on Dewey's definition, Glaser (1941) defined critical thinking as an attitude of being disposed to consider in a thoughtful way the problems and subjects that one encounters, the knowledge of the methods of logical inquiry and reasoning, and certain skills in applying those methods.

On the other hand, Ennis (1991) proposed a general definition of critical thinking. He indicated that "critical thinking is reasonable reflective thinking that is focused on deciding what to believe or do" (p. 6). Halpern (1999) stated that critical thinking refers to the use of cognitive skills or

strategies that increase the probability of a desirable outcome. Based on the educational philosophy of Paulo Freire, the purpose of education is to develop critical thinking through presenting the situation of people to them as a problem in the way that they can perceive, reflect, and act on it (Crawford-Lange, 1981, cited in Shin & Crookes, 2005).

To define critical thinking, some researchers have considered the upper three levels of Blooms' taxonomy of educational objectives i.e. analysis, synthesis, and evaluation adding two more levels of comprehension and application (Ennis, 1993). Cash (2017) believed that "critical thinking is making good decisions based on evidence and facts" (p. 57)

Considering 80s as a milestone for the development of critical thinking in education, Boisvert (1999, cited in Judge, Jones, & McCreery, 2009) explained three phases of critical thinking: (1) before the 80s when critical thinking abilities were considered as objectives, (2) during the 80s when the focus was on the processes of critical and creative thinking that were essential for problem-solving, decision-making, and research, and (3) during 90s when the focus was on the use of critical thinking processes and abilities in different situations within the school and students' personal lives.

Lai (2011) explained three academic strands of critical thinking: philosophical, psychological, and educational approach. Although critical thinking is a widely used term in educational policy documents, there are not concrete learning benchmarks to illustrate progress in it (Stapleton, 2011).

The Fundamental Features of Critical Thinking

Based on the literature review, three significant features of critical thinking are critical thinking skills (Facione, 1992), dispositions, and the abilities of a critical thinker (Ennis, 1993). Facione (1992) explained six critical thinking skills along with their sub-skills which are illustrated in Figure 1.

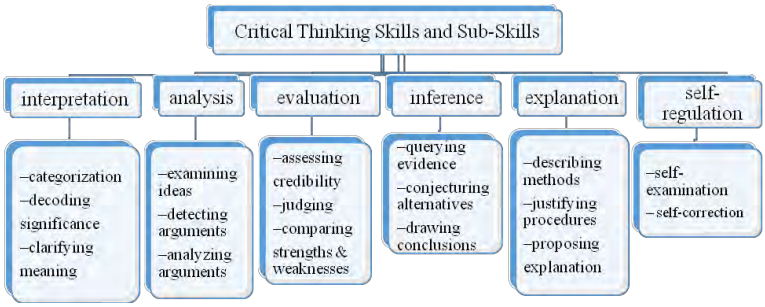

Figure 1. Critical Thinking Skills and Sub-Skills Based on Facione (1992)

Ennis (1993) listed 12 dispositions for an ideal critical thinker as follows: clarity, focus, total situation, reasons, being well informed, alternatives, precision, self-awareness, open-mindedness, caution, non-skepticism, and using one's abilities. Also, he explained 16 abilities of critical thinkers: focus, argument analysis, questions, definition, assumption (involving clarification); credibility, observation (involving the basis for decision); deduction, induction, value judgment (involving inference); supposition, integration (metacognitive abilities); orderly manner, sensitivity to others, rhetorical strategies, fallacy labels (auxiliary critical thinking abilities).

Using the term intellectual resources, Bailin, Case, Coombs, and Daniels (1999) tried to describe the critical thinker. They discussed five types of intellectual resources, namely background knowledge, operational knowledge of good thinking standards, knowledge of the key critical concepts, heuristics, and habits of mind.

According to Saleh (2019) "encouraging a detachment between the agent and the action and the researcher with the object of investigation is a fundamental feature of critical thinking pedagogy. This perspective argues that…learners can become critical thinkers through their experiences in life".

Previous Researches on Critical Thinking

Birjandi and Bagherkazemi (2010) validated the relationship between critical thinking ability of EFL teachers and their student-evaluated professional success using the Persian version of Watson-Glaser Critical Thinking Appraisal. The multiple regression analysis demonstrated that three of the five aspects of critical thinking as defined by Watson and Glaser (1980), namely 'drawing inferences', 'interpreting evidence' and 'evaluating arguments', are significantly positively correlated with the Successful Iranian EFL Teacher Questionnaire (SIETQ) scores. In their study, Pithers and Soden (2010) reviewed the literature and outlined the methods and conceptions of teaching which may impede and develop critical thinking and what is required to improve students' thinking skills. The literature review suggested that some teaching methods may inhibit development of critical thinking, including teaching that rewards quiet nonthinkers, belief that there is only one way to teach it, and emphasis on the "right answer".

Moreover, Fung and Howe (2012) adopted an experimental approach to investigate the effects of group work on students' learning of critical thinking. The result of their study showed that the students who studied in Group Work with Teacher Guidance displayed better critical thinking skills than did the students in Self-directed Group Work and students in Conventional Class. In their study, Hashemi and Ghanizadeh (2012) investigated the effect of critical discourse analysis (CDA) on TEFL students' critical thinking ability in Reading Journalistic Texts classes. Using an experimental design, they indicated that CDA has a positive and significant influence on the critical thinking ability of learners.

Using a mixed methods design, Ketabi, Zabihi, and Ghadiri (2012) tried to explore language teachers' beliefs with regard to the importance of including critical thinking in the ELT curriculum at six Iranian universities. The analysis of the questionnaire results revealed that EFL teachers tended to express strong support for the incorporation of critical thinking into the ELT curriculum. Also, the interview results added more plausibility to the survey results. Another experimental study done by Yang and Gamble (2013) tried to develop and test practical, theory-based instructional strategies by designing a course for critical thinking-integrated EFL instruction. While experimental group learners engaged in CT-enhanced activities, control group learners engaged in non-CT-enhanced EFL activities. The result showed that the experimental group learners demonstrated a significant improvement in English proficiency in comparison to the control group. Moreover, superior CT and academic achievement were observed for the experimental group in a content-based exam.

Furthermore, Forawi (2016) investigated the perceptions of pre-service teachers of critical thinking and its utilization in standard-based science education. The main results of the study identified the science standards that exhibited critical thinking from the pre-service teachers' perspectives. Also, Chen (2017) investigated the conceptualization of Chinese students of critical thinking using a qualitative study interviewing 46 Chinese college students. The study finds that there are unique qualities in Chinese students' conceptualizations of critical thinking that need to be understood in Chinese sociocultural contexts.

In their study, Zhang, Yuan, and He (2020) investigated Chinese university EFL teachers' perceptions of critical thinking and its teaching through a questionnaire and follow-up interviews. The results showed that EFL teachers in China strongly agreed that critical thinking should be an integral part of the EFL curriculum and classroom teaching.

There are few studies, in the field of critical thinking, which used grounded theory methodology in their data collection and analysis. In their study, Osman, Abu, Mohammad, and Mokhtar (2016) used grounded theory methodology to explain an analytic process in identifying pertinent elements of critical thinking and mathematical thinking used in real-world civil engineering practice.

Based on the comparative method, grounded theory originated in the 1960s by the work of two American sociologists, Glaser and Strauss (1967), who proposed an objectivist grounded theory. They emphasized generality and objectivity and ignored the role of researchers' interpretation on the research process. On the other hand, Charmaz (2008) suggested a constructivist grounded theory methodology with a relativist epistemology in which the researchers cannot separate themselves and their experiences from their research and they make consistent subjective interpretations of the data. One significant feature of the grounded theory is the distinction among three phases of coding the data: the open coding, the axial coding, and the selective coding (Dörnyei, 2007; Strauss & Corbin, 1998).

Although some previous studies in critical thinking which were mentioned above used grounded theory methodology, they did not consider the organized procedure of grounded theory. The purpose of this study was to investigate the perceptions of EFL teachers and learners on critical thinking and their awareness of the fundamental characteristics of a critical thinker using constructivist grounded theory methodology. All aspects of grounded theory such as three different levels of coding, memo writing, theoretical and purposeful sampling, iteration and saturation are considered in this study to answer the following research questions:

1. What are the perceptions of Iranian EFL teachers and learners about critical thinking?
2. Are Iranian EFL teachers and learners aware of the main characteristics of a critical thinker?
3. How can we reinforce critical thinking in students?

To answer these questions, the MAXQDA software version 12 was used to analyze the data collected through grounded theory. Then the researchers proposed a model of critical thinking in which EFL teachers' and learners' awareness of critical thinking was considered as the core category while the characteristics of a critical thinker and the strategies for reinforcing critical thinking as sub-categories.

Method

Participants

The participants of this study were divided into two groups. The first group consisted of eight experienced teachers (2 males and 6 females) who had taught English in three different contexts i.e. public, private and seminary schools in Sabzevar, Iran. In grounded studies, researchers continue to collect data until reaching the level of data saturation when no new categories are

emerging (Corbin & Strauss, 1990). First, teachers had filled the consent form to participate in this research. Then, they were interviewed during their free time at schools between their classes. They had a teaching experience ranging from 16 to 24 years and their degrees consisted of BA, MA, and Ph.D. The second group included ten advanced EFL learners (4 males and 6 females) who studied English in the mentioned contexts. Their age ranged from 14 to 16 years. The researchers continued with data collection until saturation when no new data emerged (Corbin & Strauss, 1990).

Instruments and Materials

In this study, different instruments and materials were utilized in data collection and analysis:

Semi-structured interview. To discover the perceptions of teachers and learners on critical thinking and the characteristics of a critical thinker in this grounded study, the researchers conducted semi-structured interviews.

A digital voice recorder. To record the sounds of interviewees, the researchers applied a digital voice recorder (a mobile set). According to Bernard (2011), the interviewers should not rely on their memory during the interview.

MAXQDA software. The MAXQDA software version 12 was run to analyze the data. Mills, Durepos, and Wiebe (2010) indicated that the MAXQDA software is a kind of computer-assisted qualitative data analysis software (CAQDAS).

Procedure

In this grounded study, the researchers interviewed eight EFL teachers and ten EFL learners in three different contexts of public, private, and seminary schools in Sabzevar, Iran. The interviews started with several easy factual and personal questions (Dörnyei, 2007) such as their degrees, years of experience, the level of their teaching or learning. Since the participants included both teachers and learners, the same questions were asked but in two different versions. To account for the construct validity of the findings, grounded on the basic tenets and the fundamental issues of critical thinking which were reviewed in the existing literature, the interview questions were based on the following central topics: (The slash shows the different versions of questions for teachers and students):

1. Focus and concentration (e.g. Do students have the concentration in class? How?/How does the teacher help you to focus on the lesson?)
2. Questioning (e.g. Do you give a chance to your students to ask their questions? How?/Does the teacher give you the chance to ask your questions in class?)
3. Precision (e.g. If you request the students to concentrate on the details of a subject, what strategies do you practice?/What do you do when the teacher asks you to focus on the details of a subject?)
4. Interpretation (e.g. Do you ask them to interpret a subject and talk about their understanding?/If the teacher demands you to interpret a subject, what do you do?
5. Evaluation (e.g. Do you encourage them to evaluate a subject?/Does the teacher give you a chance to evaluate a subject?

6. Alternatives (e.g. If there are more than one answer to a question, do you encourage them to think about other answers?/Do you prefer to know different answers to a question or do you indicate only one answer?
7. Open-mindedness (e.g. Do they respect the interpretation of each other?/Do you only pay attention to your ideas or try to consider the others' opinions as well?
8. Self-awareness (e.g. How can a teacher inform students of their ideas and beliefs?/Are you aware of your ideas and think about them?
9. Inferencing (e.g. How do you help students to conclude about a subject?/How does the teacher help you to conclude about a subject?)
10. Reinforcing critical thinking (e.g. Which strategies do you suggest for the thinking development of students?/What does the teacher do for your thinking development?).

In this study, the researchers tried to decrease the interview bias to its minimum possible degree (Riazi, 2016) by allowing the interviewees to express their ideas freely. Also, there were various new questions as new themes emerged (Drenten, 2012). After recording the interviews, the researchers transcribed, translated them from Persian to English, and saved them in the word format for analysis. The researchers tried to enter an interview in MAXQDA software and analyze it, then administered the next one since several new questions may be detected during each interview. Therefore, they could consider these questions in the following interview. Corbin and Strauss (1990) stated that it is necessary to analyze the data from the beginning as the results obtained will direct the next interview.

Three levels of coding of grounded theory, i.e. open coding, axial coding, and selective coding, were considered in data analysis. First, in the open coding, the data were broken down analytically (Corbin & Strauss, 1990) into chunks and conceptual categories were assigned to the data segments (Dörnyei, 2007). In this stage, about 113 codes were initially extracted from the data. Second, in the axial coding, the researchers tried to find a relationship between categories, to incorporate them, and to group them under the central concepts (Strauss & Corbin, 1998). In this study, about 18 sub-categories were developed in axial coding.

Finally, in the selective coding, the researchers selected a 'core category' with a high level of abstraction under which other categories were subsumed. In this study, the sub-categories developed in the axial level were assigned into two main categories of the characteristics of a critical thinker and strategies for reinforcing critical thinking which resulted in the core category of the EFL teachers' and learners' awareness of critical thinking.

In addition to these three levels of coding of grounded theory, this study considered four significant factors that should be considered in qualitative data collection and analysis proposed by Corbin and Strauss (1990), that is memo writing, theoretical sampling, iteration, and saturation.

Data Analysis

As it was discussed above, interview recordings were transcribed, translated, and saved in word format, and entered in the MAXQDA software version 12. In all stages of coding analysis by the researchers, two or three experts were used. The reliability of the coding system was judged by two experts and in case of any discrepancies, the third judge was asked to evaluate the coding. To code the data in open coding, the researchers read the content of each interview, highlighted a sentence, and extracted the relevant code which would be presented in the "Code System" as

soon as it was named. Figure 2 shows the main menu of the MAXQDA software used in this study.

Then, in the axial coding, a relationship between these codes was found and they were grouped under 18 sub-categories. Finally, in the selective coding, two central categories were developed i.e. the characteristics of a critical thinker and strategies for reinforcing critical thinking ability. All these categories were reflected in the core category of the study, that is, the awareness of EFL teachers and learners of critical thinking. One central part of the grounded theory, i. e. writing theoretical memos (Corbin & Strauss, 1990) was considered from the beginning of this study. These memos provided a strong foundation for reporting the findings of the research.

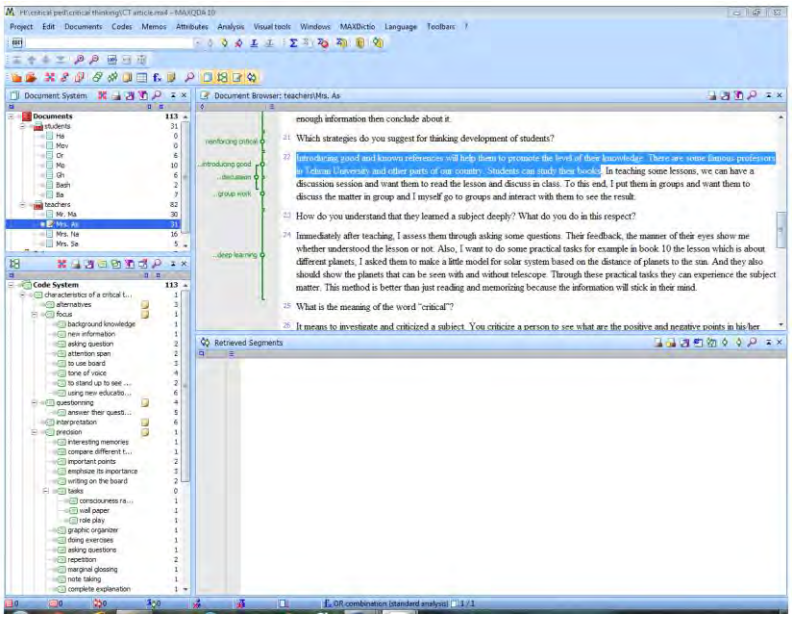

Figure 2. Codes and Sub-Codes in the MAXQDA Software

Results and Discussion

All the concepts and codes which were developed from the open coding (113 codes) and the axial coding (18 codes) were divided into two fundamental areas: the characteristics of a critical thinker and strategies for reinforcing critical thinking ability. These categories reflected the core category of the study: the awareness of EFL teachers and learners of critical thinking. Figure 3 illustrates these main categories and their related sub-categories. In this section, these main categories and their sub-categories will be discussed along with some extracts from teachers' and learners' interviews supported and verified by literature.

The grounded theory methodology whose aim is conceptual thinking and theory building is based on an interpretivist approach as the researcher tries to perceive the social world from the perspective of the participants and consider their perceptions of the world (Edwards & Skinners, 2009, cited in Khan 2014). The analyzed data of interviews along with the literature will be used to develop this kind of research (Khan, 2014). Like other kinds of research, in grounded studies,

the discussion section is also the place where the researchers discuss their findings in relation to the existing literature. To what extent their research challenges or supports existing theories? However, as Morse (2009, cited in Willig, 2013) pointed out, grounded theory is not something that is 'performed' by different researchers in exactly the same way. Therefore, every researcher will generate his/her own version of grounded theory methodology in the process of conducting the research.

Characteristics of a Critical Thinker

To infuse CT into the educational system, teachers and learners should "be guided by a holistic conceptualization of what it means to be a good critical thinker" (Facione, 1990, p. 4). Considering Teachers' (T) and Students' (S) perceptions, several characteristics of a critical thinker will be discussed in what follows:

Focus. According to Ennis (1991), "the ability to identify the focus (the issue, question, or conclusion)" (p.14) is the first and the most significant ability of a critical thinker. Teachers and learners proposed several ways through which we can foster the concentration of students in the class.

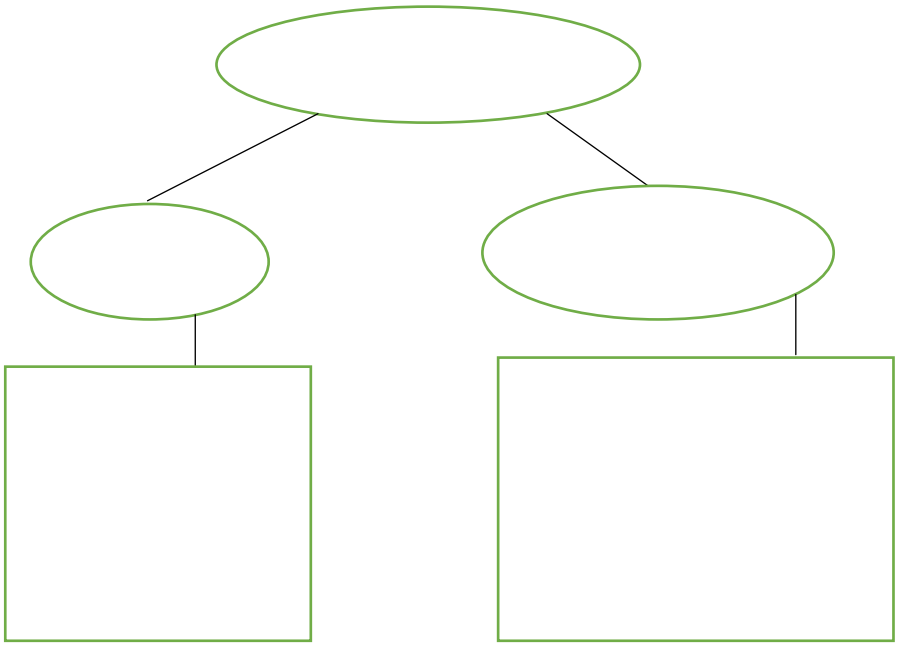

Figure 3. A Proposed Model of EFL Teachers' and Learners' Awareness of Critical Thinking

1. Asking questions: "The teacher asks several questions during teaching to enhance our concentration" (Zahra, S).
2. The tone of voice: "I change the tone of my voice. When the voice of the teacher is somehow monotonous, students will become tired and do not focus on lessons" (Mina, T).

3. Using board: "The teacher writes certain parts of the lesson on the board. In this way, the focus of students will increase unconsciously" (Narges, S)
4. Attention span: "The teacher should consider the attention span which is between 15 to 20 minutes. After this span, concentration is not possible" (Farhad, T).
5. Background knowledge: "If a subject is in general and all students have particular information about it, their focus will increase since every student has something to say" (Saba, S).
6. Using the new educational materials: "I use a laptop and computer to show a film. When the film is shown all of the students concentrate on it" (Nahid, T).

Questioning. It is essential for students to develop the habit of asking questions, to learn how to identify effective questions, to detect the difference between various types of questions (Leicester & Taylor, 2010). Nasrin (T) indicated that "I answer their questions patiently even if they ask a question several times. In this way, they are encouraged to ask their questions and are not afraid of my feedback". Both teachers and students believed that group work would help students to be more active in questioning:

> *When I go to groups, I observe that they ask most of their questions from their peers, instead of me. In groups, they are more relaxed and can ask their questions from each other. In this way, all of the students are engaged in learning. Their questions, in the group, are real questions since there are no barriers for them (Reza, T).*

Interpretation. Describing interpretation as a critical thinking skill, Facione (1990) specified that it is the ability "to comprehend and express the meaning or significance of a wide variety of experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures or criteria" (p. 6). All teachers and learners who participated in this research emphasized interpretation as a significant characteristic of a successful critical thinker and tried to engage students in learning by asking them to interpret different subject matters in class.

Shiva (S) stated that "when there are different interpretations, the collection of them will lead to a complete understanding of the subject. I try to think about the subject carefully and then present my interpretation of it".

Precision. To think critically, it is necessary to be clear, accurate and precise. According to Sen (2010), "when we think critically, we get to the heart of a problem and undertake a threadbare analysis of it (pp. 13-14). Moreover, Cottrell (2005) indicated that critical thinking involves accuracy and precision which includes attention to detail, identifying trends and patterns, repetition, taking different perspectives, objectivity, and considering implications and distant consequences. In this study, teachers and students proposed several strategies for concentrating on the details of a subject:

1. Indicating its importance: "When the teacher indicates the importance of a subject and says that it is somehow difficult, we try to focus on it" (Azar, S).
2. Repetition: "One of the significant strategies for focusing on the main points is repetition. I repeat them every session" (Farhad, T).
3. Writing on the board: "I write it on the board using color chalks" (Mina, T).
4. Using different kinds of tasks such as consciousness raising, noticing, role play, or making a wallpaper. "I want students to make a wallpaper in groups or individually" (Reza, T).

5. Marginal glossing: "I want them to write the main points in the margin" (Nahid, T).

Alternatives. Considering the alternatives in answering a question or solving a problem is a significant characteristic of a critical thinker. Critical thinking requires looking at things from different perspectives (Moon, 2008). Leicester and Taylor (2010) stated that "the ability to imagine alternatives is often associated with creative thinking" (pp. 7-8). Moreover, Kincheloe and Weil (2004) believed that "critical thinkers take nothing for granted and examined every issue from multiple perspectives" (p. 163). Accordingly, one of the students (Neda) believed that "a fundamental feature of a successful teacher is to present different answers to a question and encourage students to become aware of them". Also, Nasrin (T) explained that "a sentence can be expressed in different forms. Sometimes, it is necessary to inform students of this matter and discuss different forms and functions of particular vocabularies or sentences.

Open-mindedness. Lau (2011) indicated that an effective thinker notices the evidence objectively, and is willing to suspend judgment or alter her opinion due to the evidence. "An open-minded thinker is not dogmatic. She is willing to admit mistakes, reflect on new possibilities, and will not reject new ideas without reasonable reasons" (p. 8). Having an open view toward different issues, a critical thinker does not accept everything without thinking.

Mehran (S) stated that being open-minded would help him to increase his care: "when I listen to others' ideas, I understand that my ideas may be faulty and this helps me to modify my ideas and to contemplate carefully on a subject before giving my interpretation. It means that it will increase my care".

Furthermore, Saba (S) pointed out that "the idea of other students will influence my interpretation. When I listen to others' view, I attempt to consider their comments in the next time and eliminate my probable mistakes based on their appropriate comments".

Evaluation. The ability to evaluate critically the work of others can be considered as a significant characteristic of a critical thinker. According to Cottrell (2005), whereas several students find this easy, "others tend to accept or apply the results of other people's research too readily, without analyzing it sufficiently to check that the evidence and the reasoning really support the main points being made" (p. 8). In addition to evaluating the work of others, a critical thinker is able to evaluate his/her thought. Halpern (1998) indicated that when a person thinks critically, he/she is evaluating the outcomes of his/her thought processes. Therefore, the teacher should provide the opportunity for students to evaluate different issues under consideration in the classroom. Several students believed that group work and their background knowledge will help them to have a better evaluation of a subject:

> *To evaluate a subject, we attempt to consult our classmates in groups. This consultation will help us to have a better evaluation of a subject. On the other hand, we can use our background knowledge to have a better evaluation (Hamid, S).*

Self-awareness. Critical thinking is the ability to think about your own thinking to recognize its strengths and weaknesses, reconsider your perspective, and reconstruct your thinking in an improved form. To do this, you need to be willing to question your own thought and be open-minded to the others' ideas and views (Judge et al., 2009). Mitra (T) proposed that "through discussion and dialog in class, we can make students aware of their ideas and beliefs". All the students in this study were willing to think about their thought and indicated self-awareness as an important factor for their progress in education and life:

> *I like to think about my ideas to see which one is useful and which one should be modified. It is very helpful since certain thought and ideas become useless after a time and we should alter them and replace them with new ones (Zahra, S).*

Inference. As Facione (1992) stated, one skill of a critical thinker is the ability to make inferences. He believed that "inference means to identify and secure elements needed to draw reasonable conclusions, to form conjectures and hypotheses, to consider relevant information, and to [infer] the consequences flowing from data, statements, … or other forms of representation" (p. 6). Below are two extracts from teachers' interviews:

> *The students should be able to conclude based on a high level of knowledge. For this purpose, I want them to study carefully about a matter, collect enough information, and then conclude and give their inferences about it (Nahid, T).*

> *To reach a conclusion about an issue, students themselves should do some researches, study about that subject, collect enough information, and finally comment on it (Nazanin, T).*

Strategies for Reinforcing Critical Thinking Ability

In this section, there are several suggestions about how to reinforce critical thinking ability in students. Since there were little data in the literature in this respect, this study tried to propose various strategies for developing critical thinking based on the teachers' and learners' perceptions.

Expressing their ideas. The best and the most important strategy to reinforce critical thinking is to provide the opportunity for students to express their thoughts and ideas about the subject under consideration in the classroom. Jackson (2011) stated that many students are afraid of expressing their ideas in a class discussion since they are afraid of being wrong. To eliminate their fear, you can assign a particular role to them to play during the discussion. Thus, any idea they express is not their own. Mina (T) pointed out that:

> *When we ourselves were students our teacher did not allow us to express our ideas. Now, the educational system somehow transformed and consequently, teachers should change. It is the duty of the teacher to provide the conditions for students to present their ideas and share their knowledge and information with their classmates and also with the teacher.*

Doing research. To fortify critical thinking ability in students, the teacher can ask them to arrange various researches on different topics related to their lessons as well as encourage them to participate in certain local scientific festivals. The "research process requires systematic project management skill to allocate time, resources, and handle unexpected problems. Your research experiences will provide you with rich, in-depth learning" (Wang & Park, 2016, p. 3). Neda (S) stated that "The teacher can use different, new and attractive topics and asks the students to study and research about them". Even the most experienced teachers have difficulties in designing a research assignment (Kuhlthau, 1994).

Performing practical and authentic tasks. Through engagement in authentic tasks, teachers can help students to learn (Brophy, 2010) and will help them to be successful critical thinkers. The use of performance tasks with a common rubric can be considered as a way of raising student and teacher awareness of the tools and practices involved in critical thinking (Cargas, Williams, & Rosenberg, 2017). Authentic tasks empower students to make necessary connections to real-world problems (Ronis, 2008). In the authentic tasks, students practice content skills and knowledge in real-world applications found outside the classroom. Student collaboration, as one characteristic of quality authentic tasks, requires students to use higher order thinking skills, critical reasoning, and problem-solving strategies (Cash, 2017). Reza (T) proposed that: The

teacher can take the students into society and allow them to see certain jobs directly, and then discuss them in class.

Another teacher, Sara, pointed out that:

> *In book 10, lesson 2 which is about different planets, I asked them to make a little model of the solar system based on the distance of planets to the sun.*

Creative writing. One way to reinforce critical thinking is to provide the opportunity for students to write creatively, whether in the form of a classroom composition or conversation. Kellogg (1999) considered thinking and writing as twins of mental life. He indicated that the study of the more expressive twin i. e. writing, can offer insights into the psychology of thinking which is the more reserved member of the pair Also, Horton (1982) indicated that an individual can improve his/her thinking about a particular topic by writing about it. In this study, teachers and students proposed several ideas for creative writing to reinforce critical thinking. Azar (S) recommended that "the teacher can present an unfinished story and ask the students to finish it". Moreover, Mehran (S) suggested that "the teacher can give different words or idioms to students and request them to write a conversation".

Meaningful learning. A critical thinker tries to learn the intended subject deeply and focus on meaningful learning, not rote learning. Richards (2013) believed that "creative teachers express a desire to motivate students, to challenge them, to engage their curiosity, to encourage deep learning rather than surface learning. They try to develop a classroom atmosphere that encourages and motivates students in their learning" (p. 37). Dunsmore (2014) stated that when students are engaged in deep and meaningful learning they are certainly engaged in critical thinking. In the process of meaningful learning, students "activate their existing knowledge, relate it to educational experiences, and construct new knowledge in the form of conceptual models" (Glynn & Duit, 1995, pp. 4-5). In this study, teachers and students proposed several techniques for meaningful learning:

> *Questions can be asked in different forms to see whether students understand the subject matter deeply and meaningfully or not (Sara, T).*

> *For deep and meaningful learning, the students should also be involved in learning (Mehran, S).*

> *The teacher can use different games, reminiscences, or certain music to provide the conditions for meaningful learning (Shiva, S).*

Group working. Another strategy for reinforcing critical thinking is to put students in groups and want them to discuss the subject matter in groups and interact with each other as well as with the teacher. Tsui (2001) believed that "compared to teacher-fronted interaction, both pair work and group work provide more opportunities for learners to initiate and control the interaction, to produce a much larger variety of speech acts, and to engage in the negotiation of meaning" (p. 122). According to Fakher Ajabshir and Panahifar (2020), putting students with heterogeneous abilities within a group have some advantages for all learners. While the low-ability learners may improve their performance by means of their advanced peers' guidance, high-level students try to reinforce their previous learning. Farhad, one of the teachers, indicated that:

> *I divide students into peer groups. A person who has a higher proficiency level will be the leader of the group. The members of a group should interact with each other and with the teacher. Therefore, their attention is less distracted and all of them are involved in learning.*

Discussion. As mentioned before, one important strategy for reinforcing critical thinking is to allow students to express their ideas about a subject. This strategy is applicable only by discussion. Witherspoon, Sykes, and Bell (2016) indicated that teachers use discussion in the classroom in order to help their students build discussion skills. Creating a supportive classroom, teachers can make the classroom discussion meaningful (Witherspoon et al., 2016). Mitra (T) suggested that "in teaching different lessons, we can have a discussion session and ask them to read the lesson and discuss in class". Ali (S) believed that "through discussion, we are able to interact with our classmates as well as with our teacher, interpret a subject matter, and express our thoughts and ideas". All these factors can be considered as the characteristics of a critical thinker.

Extensive reading. Extensive reading is much broader in scope, is usually associated with wide reading for general awareness, and leads to deeper understanding of the reading material and better retention of the matter (Konar, 2011). Consequently, introducing valuable and known references will help students to promote the level of their knowledge which certainly is necessary for critical thinking. Mina (T) stated that "there are many famous people who have written several valuable books in various subject matters in many parts of our country and in the world. Students can study their books and acquire a lot of information". Moreover, Nahid (T) pointed out that "unfortunately, because of social networking such as telegram, internet, etc., students are not interested in studying printed books". According to Grabe (2002), "classrooms and libraries must be supplied with reading resources that can excite students to read" (p. 281).

Using graphic organizers. Another way to promote critical thinking in students is to ask them to make graphic organizers about the intended subject, especially in groups. According to Li (2015), a graphic organizer is a communication tool through visual symbols to express knowledge, concepts, thoughts, ideas, and relationships. Graphic organizers make concepts and information more available to all students, particularly English language learners and make complex information manageable since they help students to organize information in a meaningful way. Nazanin (T) believed that "graphic organizers will help students to think deeply, coordinate their efforts, and find the relationship between hierarchical things". Furthermore, Reza (T) indicated that "this strategy will encourage students to be creative, think carefully, and focus on the subject to find the relationship between different parts of it. In fact, while they are making graphic organizer, recognition and production will happen concurrently".

Conclusion

The ability to think critically is considered as one of the significant issues for success in the contemporary world. Since teachers' and learners' roles are basic in learning and teaching, they should be aware of the concept of critical thinking. The purpose of this study was to investigate the perceptions of Iranian EFL teachers and learners on the main constructs of critical thinking, to explore their awareness of the central characteristics of a critical thinker, and to propose some basic strategies necessary to reinforce critical thinking ability in students.

Drawing on the constructivist grounded theory methodology developed by Charmaz (2008) and talking with Iranian EFL teachers and learners in three different contexts of public, private, and seminary schools, the researchers of this study proposed a critical thinking model in which two major categories were discussed: the characteristics of a critical thinker and the strategies for reinforcing critical thinking ability. There are several sub-categories for each reflecting the core category of the study–the awareness of EFL teachers and learners of critical thinking.

The findings of this study supported the fundamental characteristics of a critical thinker such as focus, questioning, interpretation, precision, alternatives, open-mindedness, evaluation, self-

awareness and inference. Moreover, this study proposed several helpful strategies for teachers to reinforce critical thinking ability in their students.

The data collection procedure of this study is limited to a semi-structured interview. In the future researches, the data can be collected from different sources such as observation and journals. Also, there can be a treatment in critical thinking both for teachers and learners.

The finding of this study proposed some pedagogical implications for EFL teachers, learners, curriculum developers, and syllabus designers. Through critical thinking, the students are able to identify the focus, develop the habit of asking questions, interpret different subject matters and situations, be precise, consider alternatives in answering a question or solving a problem, be open-minded, evaluate critically the work of others, think about their own thinking, and make inferences. These show the significance of thinking critically for the students. Our world needs people who think more deeply, solve problems better, communicate, and collaborate and more effectively in their personal as well as organizational lives; our world needs critical thinkers.

Therefore, it is time for teachers to play an influential role in changing the spoon-feeding education paradigm in which the knowledge is transmitted from teachers to students and help their learners develop critical thinking skills. Also, considering the importance of critical thinking in education, curriculum developers and syllabus designers, as the main authorities in developing educational facilities, can include critical thinking programs in the curriculum. They can put some critical thinking activities such as practical and authentic tasks and creative writing in textbooks and support in-service classes for teachers on how to use critical thinking strategies.

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