Journal of English language Teaching and Learning

University of Tabriz

Volume 14, Issue 30, (Fall and Winter 2022)

Critical Thinking as an Essential Factor in EFL Teacher Educators' Professional Development: a Transformative Learning Paradigm

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ARTICLE INFO:

Received date:
2022.06.08
Accepted date:
2022.07.11

Print ISSN: 2251-7995
Online ISSN: 2676-6876

Keywords:

teacher educators, critical thinking, professional development, transformative learning

Abstract

The present qualitative research sought to investigate EFL teacher educators' experiences and attitudes toward critical thinking and its role in teacher professional development. The adopted design was a case study and the theoretical framework was the theory of transformative learning (Mezirow, 1978). For the data collection purpose, 30 EFL teacher educators participated in in-depth interviews. The whole procedure of the data collection was audiotaped for further reference in data analysis. The interviews were transcribed to familiarize with the data and the transcribed interviews were member checked with the participants. The collected data were analyzed through reflective thematic analysis. The data analyzed paved the way for generating three themes: *cognition*, *metacognition*, and *personal growth/self attainment*. The findings of the study comprise a number of implicatios for both theory and practice. One aspect of our contribution is that the notion of critical thinking can be conceived as more than cognitive and metacognitive one; it should be conceptualized as possessing both facets as well as other possible subsets. Beyond that, we suggest that critical thinking should be conjectured as being both a process and a product.

DOI: 10.22034/ELT.2022.51042.2493

Citation: Yazdankhah, J., Behin, B., Yousefi, M. H., Asadollahfam, H. (2022). Critical Thinking as an Essential Factor in EFL Teacher Educators' Professional Development: A Transformative Learning Paradigm. *Journal of English Language Teaching and Learning*, 14(30), 194-208. Doi: 10.22034/ELT.2022.51042.2493

Introduction

Critical thinking is regarded by many scholars and thinkers as a must acquired skill in today's world. One can find a rich literature on critical thinking in the last decade or so (Bagheri, 2015; Bali,2015; Leest & Wolbers,2021; Reid & Chin, 2021; Zucker, 2019). There are a number of different and sometimes divergent definitions of the construct in the literature (Dewey, 1933; Dwyer, Hogan & Stewart, 2014; Facione, 1990; Halpern, 1998). Dewey's definition is cognitively geared and he defines it as *"*the kind of thinking that consists turning a subject over in the mind and giving it serious consecutive consideration*"* (Dewey, 1933, p. 3). In the similar way, Halpern's (1998) definition about critical thinking is cognitive dominated one: critical thinking is described as making purposeful and advisable judgments as a result of engaging in a process of analysis, interpretation, evaluation, inference, explanation, and re*fl*ection. According to another definition, critical thinking is regarded as a metacognitive process requiring meaningful and re*fl*ective judgement which leads to better logical conclusions of arguments or adequate solutions to any possible problems (Dwyer, Hogan & Stewart, 2014). Facione provided a different definition: *"*purposeful, self-regulatory judgement which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criterion logical or contextual considerations upon which that judgement is based*"* (Facione, 1990:2).

There have been a variety of functions and advantages of critical thinking: first, individuals need to think critically in order to adapt to unfamiliar situations and to prevent the spread of misinformation, as the pace of change continues to accelerate and the complexity of work and the world around us intensifies (Zucker, 2019). Additionally, it has been proved that critical thinking is one of the most required skills in the digital information era that can be effectively employed in education, real life, and work (FYA, 2017).

Furthermore, according to the recent World Economic Forum, critical thinking ranks second on the list of the top ten most required human competencies, and interest among employers in it will double by 2030 when compared with 2016 (Jezard, 2018). Similarly, scholars argue that nowadays, critical thinking is of particular importance because it provides citizens with a tool to actively participate in democracy, even though it may be culturally biased, which is yet a controversial view (Bali, 2015). In addition, developing critical thinking in university students is becoming an increasingly expected as well as desired outcome of higher education (Facione, 2013). Finally, scholars view the development of critical thinking skills as one of the criteria for giftedness, which has psychophysiological grounds, and the level of critical thinking in this context is an indicator of the quality of learning (Gilmanshina, Smirnov, Ibatova, & Berechikidze, 2021).

Ackoff & Greenberg (2008) asserted that teachers usually prefer traditional teaching styles relying on a didactic approach, rather than modern teaching strategies using activity-based approach. Most of the empirical studies employed quantitative approaches on critical thinking (Reid & Chin, 2021) or they sought to find the correlational relationship between critical thinking and other phenomena like language proficiency, motivation, academic success and etc. (Bagheri, 2015). According to Loveland (2019), the majority of teachers view the skills in critical thinking as important in teaching, but, unfortunately, they do not fully understand the

substance of critical thinking and which strategies are the most appropriate for its successful implementation and evaluation.

Teacher educators teach classes, provide supervision, and offer school consultancy (Yuan & Yang, 2020). Despite the importance of their work, teacher educators are still often considered 'hidden professionals' due to the limited number of studies that have examined this group (Livingston, 2014; Tack, Valcke, Rots, Struyven, & Vanderlinde, 2018). Additionally, teacher educators contribute signi*fi*cantly to the development of in-service teachers' professional competencies and instructional quality through their training of in-service teachers (European Commission, 2013). However, there has been little research on this group of educators in general (Lunenberg et al., 2014)

The present study aimed at finding Iranian EFL teacher educators' experiences and perceptions of the notion of critical thinking and its role in professional development. From a broad perspective, teacher educators can be defined as those who actively facilitate the formal learning of student teachers and teachers (European Commission, 2013). Our study is based on the perspective that focuses on what teacher educators learn during their professional work, the learning activities they undertake with regard to the construct of critical thinking, and their reasons for learning at work (Dengerink, Lunenberg, & Kools, 2015). Teacher professional development can be *"*any activity that is intended partly or primarily to prepare staff members for improved performance in present or future roles*"* (Little, 1987: 491).

Literature Review

Critical thinking is usually associated with adult thinking, higher education, advance level of language proficiency, scientific knowledge and academic fields or workplace (Petek & Bedir, 2018; Yang & Gamble, 2013). In an empirical study, Halx and Reybold (2005) investigated faculty perceptions of critical thinking in a small liberal arts college in the US. The results show that instructors were unclear about exactly what abilities they should be developing in students, with most of the instructors teaching critical thinking based on their own definitions and crucially they did not feel trained to teach critical thinking.

Bezanilla and colleagues (2019) combined a literature review of evidence-based activities for critical thinking and university teachers*'* descriptions of the activities they used to teach critical thinking. These descriptions were gathered in an open-ended format. The teachers*'* responses were then interpreted in the light of previous academic research. Besides, Shively et al. (2018) investigated the correlation between critical thinking and creative thinking when using online technologies. The results found a positive correlation between critical thinking and creativity. In the work of Leest and Wolbers (2021) this topic was explored through a survey design in various institutions in the Netherlands. The main objective of this study was to investigate the influence of critical thinking and creativity on students*'* chances of being selected for professional development courses. The results showed that critical thinking plays a significant role in student selection, while creativity plays an extremely marginal role and has little influence on the selection process.

Theoretical framework

The theory of transformative learning was formulated by Mezirow in 1978. Mezirow (1996:162) defines learning as "the process of using a prior interpretation to construe a new or

revised interpretation of the meaning of one's experience in order to guide future action". Therefore, transformative learning aims at challenging learners' value systems and world views, leading to a substantive change in practice transformative learning is defined as the process by which human being transform problematic frames of reference (mindsets, habits of mind, meaning perspectives) – sets of assumption and expectation – to make them more inclusive, discriminating, open, reflective and emotionally able to change. Such frames are better because they are more likely to generate beliefs and opinions that will prove more true or justified to guide action (2018). Frames of reference are the structures of culture and language through which we construe meaning by attributing coherence and significance to our experience. They selectively shape and delimit our perception, cognition and feelings by predisposing our intentions, beliefs, expectations and purposes. These preconceptions set our 'line of action'. Once set or programmed, we automatically move from one specific mental or behavioral activity to another, and we have a strong tendency to reject ideas that fail to fit our pre-conceptions. (2018).

'Learning is understood as the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one's experience in order to guide future action' (Mezirow 1996: 162). This rational process of learning within awareness is a metacognitive application of critical thinking that transforms an acquired frame of reference—a mind-set or worldview of orienting assumptions and expectations involving values, beliefs, and concepts—by assessing its epistemic assumptions. According to Mezirow (2012), adult learners who experience transformative learning generally pass through six phases, namely: i) a disorienting dilemma; ii) self-critical assessment of assumptions; iii) recognition through discourse that assumptions are shared by others; iv) exploration of new ideas and relationships; v) planning a course of action; and vi) taking action based on the new perspective developed through this process. A disorienting dilemma, means an experience that contradicts one's long accepted beliefs, or habits of mind. Such contradictions are generally, the result of distorted epistemic, psychological, and sociolinguistic assumptions. A disorienting dilemma is followed by self-examination, that one has unconscious assumptions of what is true.

Design

The adopted research paradigm in this study was qualitative one. Bryman (2005) *defines a research paradigm as "a cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, [and] how results should be interpreted".* In addition, the adopted paradigm was because of the fact that one of the advantages of this approach is that the researcher is the primary instrument that means that they can be responsive and adaptive to the participants and research setting and can quickly begin to explore unanticipated avenues of research (Heigham & Croker, 2011). Additionally, the adopted design was case study. Case study research aims at a comprehensive, in-depth description of a specific case, which is defined as a "phenomenon of some sort, occurring in a bounded context" (Miles & Huberman, 1994, p. 25).

Participants

We recruited our participants from ELT teacher educators from the universities in Tabriz, Iran to reduce potential bias (Abma, 2006). The 30 participants were ELT teacher educators who

had more than ten years of teaching experience at university to postgraduate students educating pre-service teachers. They were volunteered for the study and they were assured that their personal information and ideas on the issue under question would be kept confidential. At the initial research stage, all respondents gave their informed consent for being enrolled in the study process and for their personal data to be collected and used. Participation was fully voluntary and anonymous. Therefore, no personally identifiable information was disclosed (Dodgson, 2019). We used purposive sampling approach (Bryman, 2008).

Data Collection

We conducted in-depth interviews with 30 EFL teacher educators in the first author office. Each interview lasted 40 minutes. The whole procedure of the data collection was audiotaped for further reference in data analysis. The participants were asked to answer five interview questions as well as follow-up questions. We asked our participants about their experiences and perceptions on critical thinking and its role in professional development. We were especially interested in finding about their life-long experiences and learning of the construct.

Data Analysis

All the data were transcribed by the lead researcher. He emailed the transcribed data to two fellow researchers. The researchers independently codified the data. They had a session discussing which quotations ought to be included in the study. The selected quotations were translated by the researcher and two other colleagues independently and they emailed the translated quotations to each participant to verify them. All the mismatched items were settled through negotiation and communication among the researchers and the participants (the data were member checked).

We employed reflexive thematic analysis for the purpose of the data analysis (Braun & Clark, 2020). One of the advantages of reflexive thematic analysis is that it is suited to both experiential (e.g. critical realist, contextualist) and critical (e.g. relativist, constructionist) framings of language, data and meaning (Braun & Clarke, 2013). We used inductive coding in analyzing the data. Researchers using reflexive thematic analysis inductively need to identify, and ideally articulate in their reporting, the theoretical assumptions informing their analysis (Braun & Clark, 2020). We began analyzing our data by coding the data after transcribing the whole data. Within reflexive thematic analysis, the coding process is integral to theme *development*, in the sense that themes are an 'outcome' of these coding and theme development processes, are developed *through* coding (Braun & Clark, 2020). Our coding is not a process for finding evidence for pre-conceptualized themes. (Braun & Clark, 2020). The analytic *process* involves immersion in the data, reading, reflecting, questioning, imagining, wondering, writing, retreating and returning. It is far from mechanical and is a process that requires 'headspace' and time for inspiration to strike and insight to develop (Gough and Lyons 2016).

Results

The data analyzed paved the way for the generating three themes: *cognition*, *metacognition*, and *personal growth/self attainment*.

Table 1. The emerged themes and codes on teacher educators' conceptions of critical thinking

Cognition	Problem solving, decision making, evaluation, judgement, analysis, synthesis, inferencing
Metacognition	Self-regulation, self-awareness, self- reflection, self-monitoring, self-planning , self-analysis
Personal Growth/Self Attainment	Actualization, moral development , life quality, meaning of life, free will, transcendent life

Cognition

We have nominated the theme so because a number of codings and sub-themes led us to do so. In the analysis of the data, the lead researcher came up with a different cognitive tasks such as *problem solving, evaluation, judgement, resoning, inferencing, synthesis, analysis, decision making,* and *learning.* Common to all these codes was the theme of cognition. Iranian EFL teacher educators' conceptualization in this regard is to distinguish critical thinkers from non-critical thinkers in terms of involving in mental and cognitive tasks. We may be able to conceive of critical thinking as a dichotomy rather than a continuum. However, in their perceptions the latter one seems so closer to reality. In what follows , mention will be made of the themes along with the different exceprts from the particpants and interpretative analysis of the quotations:

Dr. Ahmadi said that:

> *A critical thinker is always applying reasoning in his/her endeavors. To do the required and favorite tasks, s/he investigates the underpinning reasons behind phenomena. Capitalizing on accessible evidence and documents, critical thinkers always go beyond the received information from the environment. Critical thinking always goes hand in hand with analysis and synthesis. To the best of my knowledge, both synthesis and analysis are integral parts of professional development.*

The participant enumerates a number of cognitive processes which encompasses critical thinking; *reasoning*, *processing received data*, *synthesis* and *analysis*. He believes that the ingredients of critical thinking are synthesis and analysis. Ahmadi thinks that critical thinkers never take something for granted and process the received information and break, synthesize and resynthesize information.

Dr. Milani answered our interview question accordingly:

> *Critical thinking involves problem solving, finding solutions to dilemmas and difficulties we encounter in everyday life. No doubt, Efficiency is needed in our lives. To be efficient and achieve efficiency, sound decision making is required. To the best of my knowledge, critical thinking also encompasses evaluation and judgment. it can be concluded that all of these mental processes will nurture both critical thinking and enhances professional development.*

Milani's experience of critical thinking is cognitively geared. He conceptualizes the notion both in terms of process and a product. He emphasizes problem solving, judgment and evaluation as the cognitive processes involved in critical thinking. For him achieving efficacy and finding solutions to various dilemmas that human beings encounter in everyday life are regarded as the end products of involving in critical thinking tasks. The participant's experience of critical thinking is, moreover, nurturing professional development by critical thinking.

Dr. Hessami addresses the issue in the following fashion:

> *It is an art of thinking differently. It reshapes and conceptualizes our thinking framework. Additionally, it enables us as human beings to think in a coherent, critical and systematic way. We grow professionally via involving in critical thinking activities and tasks. Professional development can be conceived as a by-product of critical thinking.*

Her experience of critical thinking is a bit top-down and overall perspective. She believes that critical thinking provides human beings with thinking frameworks. The advantage of having one's own thinking framework is that it lets people to think in a coherent and systematic fashion. She also endorses critical thinking in that engaging in critical thinking tasks and thinking critically enhances human beings' professional development. Finally, tacit in her thinking is the fact that, critical thinking not only regulates our own thinking processes and procedures but also enhances our professional development.

Dr. Majidi explains critical thinking as:

> *It can be defined as an asset to us to distinguish between argument and false reasoning, between fact and opinion. It is a tool for creating our own versions of knowledge and learning. It is a way of gaining perception. Through critical thinking, we can attain life-long learning. I also believe that critical thinkers outperform other people in problem solving, analytic thinking and decision making skills.*

For Dr. Majidi, critical thinking is an asset which makes human being capable of distinguishing argument from chicanery. It acts as a lens that enables people to construct their own versions of knowledge. Majidi also asserts that critical thinking is a passage to life-long learning and perhaps professional development. He also adopts a cognitive approach to the construction of critical thinking. For him, mental processes such as problem solving, analytic thinking and decision-making are typical of critical thinking skill. Finally, he believes that for excellent education and professional development critical thinking is a must needed skill.

Metacognition

The theme metacognition emerged as a result of appearing the following codes in the data: *self-regulation, self-monitoring, self-reflection, self awareness, self-criticism* and *self-analysis.* The justification behind selecting and nominating the theme lies in the fact that all the mental processes are used for more or less for similar purposes; to control and regulate our own mental capabilities and tasks.

Dr. Hashemi states that:

> *Critical thinking is akin to meta-analysis of thoughts. It is exactly about going beyond the different thoughts and ideas. it is like adopting a bird's-eye view on the relationships among divergent thoughts. It is about thinking of thinking both about one's own thinking and others.*

Tacitly stated in the idea expressed by Dr. Hashemi is that critical thinking is both cognitively informed and metacognitively geared. As long as we emphasize mental processes, the existence of cognitive processes is taken for granted. Hashemi's experience of and attitude towards critical thinking is well thought and deeply conceived one. He believes that engaging in critical thinking means encountering a variety of thoughts and trying to make sense of them and judging each one's primacy and logic. It is up to human beings to compare and contrast different and divergent thoughts to find one's own way in life and in profession as well. Critical thinking is an approach to realizing different thoughts either to approve or oppose them. For Hashemi, critical thinking is a process and professional development is a product of that process.

Mrs. Maleki suggests that:

> *We should regulate our own thought processes day in day out, both in our personal lives and in language teaching and in our professions as university teachers. We stipulate both short-term and long-term objectives in our professional lives operationally. Critical thinking can be of assistance to us in developing professionally. Critical thinking can monitor and evaluate our own way of thinking for us.*

Mrs. Maleki's perception of critical thinking is based on individualized manner. She emphasizes the self-regulation function of critical thinking. As it is clear, self-regulation is about controlling, monitoring and planning for someone's learning and endeavor. To her, self-regulation occurs daily in human's personal and professional lives. Another dimension of metacognition that was formulated and focused by Maleki is self-planning. Self- planning pertains to agenda setting both in short term and longer one in an operational fashion and feasible manner. Finally, she highlights the mediating role of critical thinking in professional development.

Dr. Derakhshan maintains that:

> *I personally believe that we explore ourselves via critical thinking. Beyond that, self-reflection can be nurtured through critical thinking. We discover our own weaknesses and strengths through engaging in critical thinking tasks. You know that the end result of critical thinking is growth. We grow both professionally and personally. Critical thinking, also, can lead us to challenge ourselves and to put question mark in front of our value system. To reach a valuable kind of knowing ourselves, we should attain a level of self-knowledge.*

It can be clearly inferred from Derakhshan's reflection on the issue under discussion that self- exploration and self-reflection can be done and enhanced respectively. Self-reflection via pondering over ones' behaviors, thoughts and inclinations paves the way for professional development. To Derakhshan, self-exploration and self-reflection are instances of

metacognitive processes. No doubt, when he conceptualizes his life-long experience of the notion of critical thinking as a metacognitive one, he tacitly confirms the fact that aside from having a metacognitive realization, critical thinking is a cognitively oriented skill. The construct, in his viewpoint, assists us to challenge our own thinking processes as well as our belief systems.

Alizadeh, summarizes his own realization and life-long experience of the construct accordingly:

> *Well, you know human being is the only living thing that is able to judge him/herself. We are able to self-evaluate our behaviors and self- reflect on our actions and ideas. One facet of critical thinking is that we can analyze ourselves. Critical thinking will enable us to make a judgment about our actions, objectives and thoughts to know whether they are logical, moral or not. In so doing, we will go through professional development path.*

It can be easily inferred from Alizadeh's comments on critical thinking that his own conception of both critical thinking and professional development are process-oriented ones. He believes that critical thinking can distinguish human beings from animals. Armed with the construct of critical thinking, we are capable of evaluating our own behaviors and pondering over our thoughts and actions. Critical thinking also provides us with an ability to analyze ourselves other than the things, the people, and the phenomena around us. He makes association among critical thinking, logical thinking and moral thinking. Alizadeh believes that involving with these metacognitive tasks will lead us to go through professional development path. He never conceives of professional development as a product or an aim that we should attain or achieve; instead, we should take the path of professional development without any boundaries and limitations.

Personal Growth/Self Attainment

The theme *personal growth/self attainment* was generated through sub-themes of *moral development,* and *professional development.* The following codes paved the way for the emergence of the themes like: *life quality, life style, philosophical awareness, meaning of life, transcendent life, open-mindedness, and free will.*

Mrs. Bahmani narrated her own experience of the notion:

> *Critical thinking will help human beings to transcend their own fundamental and biological needs e.g. food and shelter. It's developing cognitively, emotionally, professionally and philosophically. It certainly creates conditions for personal growth and for occupational achievement.*

According to Mrs. Bahmani, one of the functions of critical thinking is making possible for human beings to go beyond their biological and lower order needs and move towards self-actualization. To furnish their potential capabilities, this movement is a required skill. She also believes that critical thinking will certainly influence us cognitively, emotionally and philosophically. You can grow with respect to philosophical understanding of the existence. Seen from Bahmani's perspective, for personal growth and professional development one

needs a variety of skills. No doubt, critical thinking is among the top needed skills for progress and development.

Dr. Afshari points out that:

> *Critical thinking is not merely on thinking differently and weighing ideas against each other. Moreover, it assists to gain meaning of life in a profound way. Critical thinkers will be armed with philosophical awareness and thinking maturity. They will appreciate meaning of life in a profound manner. They will develop accordingly.*

Afshari has his experience of critical thinking as a capability to engage in philosophical awareness. To him, via critical thinking, one can attain the philosophy of life; otherwise it is difficult to grasp. He believes that thinking in a profound way and judging divergent ideas and thoughts are rudimentary forms and manifestations of critical thinking. In contrast, evolving into a profound and fundamental inquiries of life is among the most complicated tasks for critical thinkers. Critical thinkers are able to appreciate the meaning of life in a positive and profound manner. For them, critical thinking is not only a process of engaging in higher order thinking and meaning-making of the creation but also as a process of evolving their own growth and development. Appreciation of the depth of the life not only requires human being to ascend to every day way of thinking but tends to thinking critically and deeply.

Mrs. Jaleb asserted that:

> *In everyday life, we involve ourselves in superficial thinking. This way of thinking does not let us to go beyond our basic needs and desires. Some of our inner desires and inclinations cannot be met via superficial thinking; they need to be met through engaging ourselves in critical thinking. Critical thinking will assist us in thinking of our fundamental dilemmas and mysteries such as our life, our identity and/or our death. Thinking in such a way has the blessing of growing personally and professionally.*

Mrs. Jaleb believes that it is only through engaging in critical thinking that one can be developed into the most profound and philosophical level. Asking questions that can find answers to is much more difficult if not possible. She thinks that exploring philosophical dimension of life can be made possible at the mercy of critical thinking skills. This participant believes that critical thinking lies in sharp contrast to superficial thinking and superficial thinking is only beneficial and of help to meeting human beings' basic and fundamental needs. Critical thinking is like a deep learning process that is helpful for higher level needs. One can go through professional development through personal growth.

Discussion

The present study aimed to investigate Iranian EFL teacher educators' experiences, life-long learning and attitudes toward critical thinking. It also wanted to elicit their views on the role of critical thinking in teachers' professional development. As far as the cognitive dimension of critical thinking is concerned, the participants conceptualized the notion as having the following subcomponents: reasoning, processing received data, synthesis and analysis, problem solving, and judgment and evaluation.

They also asserted that the ingredients of critical thinking are synthesis and analysis. On the accounts of the participant teacher educators, critical thinkers never take something for granted and process the received information and break, synthesize and resynthesize information they received from the environment. The participants regarded critical thinking both as a product and a process. Regarding it as a product, achieving efficacy and finding solutions to various dilemmas that human beings encounter in everyday life is regarded as the end products of involving in critical thinking tasks. The findings are similar to Authors 1, 2, 3 & 4 (2021) in that their other earlier study revealed that the participants, EFL teachers, perceived the notion as a product not a process. In thinking so, the participants develop their own frames of reference (Mozilowa, 1987) in the structures of culture and language through which teacher educators construct meaning by assigning coherence and significance to our experience. The study shows that as far as the *process-oriented* view of critical thinking is concerned, critical thinking is not only a process of engaging in higher-order thinking and meaning making of the creation but also as a process of evolving their own growth and development.

Another contribution of the present study was viewing critical thinking as a tool**.** On the basis of the participants' ideas, critical thinking can act as a nurturing factor that provides human beings with thinking framework. The thinking framework lets people think in a coherent and systematic fashion. Furthermore, thinking critically enhances human beings' professional development. Finally, critical thinking regulates our own thinking processes and procedures. The participants also pointed out that critical thinking makes human being capable of distinguishing argument from chicanery. It acts as a lens that enables people to construct their own versions of knowledge. They highlighted the fact that critical thinking is a passage to life-long learning and perhaps professional development. According to the points made by the participants, critical thinking will arm humans with self-planning that pertains both in short-term and long-term agenda setting in both an operational fashion and a feasible manner.

Yet, another facet of the contribution of the current study was to confirm critical thinking as a metacognitive skill. The results suggested that it is up to human beings to compare and contrast different and divergent thoughts to find one's own way in life and in profession as well. Critical thinking is an approach to realize different thoughts either to approve or oppose them. Related notions of metacognitive processes that were endorsed and pointed out by the participant teacher educators were: self-regulation, self-exploration and self-reflection. No doubt, when the teacher educators conceptualize their life-long experiences of the notion of critical thinking as metacognitive one, they tacitly confirm the fact that aside from having a metacognitive realization, critical thinking is a cognitively-oriented skill. As highlighted by Mozilowa (1987), frames of reference selectively shape and delimit our perceptions, cognitions and feelings by predisposing our intentions, beliefs, expectations and purposes.

After all, the study revealed that according to the EFL teacher educators' perspectives, one of the functions of critical thinking paradigm is to make it possible for human beings to go beyond their biological and lower order needs and eventually move towards self-actualization. To furnish their potential capabilities, this movement is a required skill. Via critical thinking, we can grow with respect to philosophical understanding of the existence. Furthermore, critical thinking can be a capability to engage in philosophical awareness. The participants verified

that thinking in a profound way and judging on divergent ideas and thoughts are presumably the rudimentary forms and manifestations of critical thinking. In the same vein, critical thinkers are able to appreciate the meaning of life in a positive and profound manner. The participants believe critical thinking is in sharp contrast to superficial thinking and superficial thinking is only beneficial and of help to meeting human beings' basic and fundamental needs. Critical thinking is like a deep learning process that is helpful for higher level needs. One can go through professional development through personal growth.

According to transformative theory, this rational process of learning within awareness is a metacognitive application of critical thinking that transforms an acquired frame of reference - a mind-set or worldview of orienting assumptions and expectations involving values, beliefs, and concepts - by assessing its epistemic assumptions. Regarding the role of critical thinking in professional development, it is a process and professional development is a product of that process. The participants asserted that involving with these metacognitive tasks will lead us to go through professional development path. They never conceived professional development as a product or an aim that we should attain or achieve; instead, we should take the path of professional development without any boundaries and limitations. The participants' experience of critical thinking was, moreover, nurturing professional development by critical thinking.

Conclusions

The present study highlighted three subsets of critical thinking: cognitive processes, metacognitive processes, and personal growth/self attainment. Earlier models and definitions of the construct leaned towards either cognitive or metacognitive facets. One aspect of our contribution is that the notion of critical thinking can be conceived as more than cognitive and metacognitive one; it should be conceptualized as possessing both facets as well as other possible subsets. Beyond that, we suggest that critical thinking should be conjectured as being both a process and product. On the basis of the EFL teacher educators' experiences, life-long learning, and attitudes shaped by their frames of reference, critical thinking can be treated as possessing mental processes that are in charge of regulating and functioning our cognitive as well as metacognitive processes.

The second contribution of our study is that, once asked of their experiences and their knowledge of the construct, Iranian EFL teacher educators mentioned it was both a process and a product. Critical thinking was regarded as a set of mental processes amenable to both personal growth and professional development. Treated as a product, critical thinking was conjectured as a tool that makes it feasible to achieve efficiency, excellence in someone's personal life and societal affairs.

Implications

Our study elicited university-based teacher educators' experiences, and life-long learning as well as their attitudes towards critical thinking. The present study highlighted the significance of critical thinking as having both cognitive and metacognitive facets, as being both a process and a product. According to our participants, critical thinking can be treated as a tool for personal growth/self attainment, for nurturing cognitive and enhancing our metacognitive awareness. They also related the notion to philosophical awareness and higher order cognitive and metacognitive tasks such as self-reflection and self-exploration which makes it possible

for men to transcend their basic and biological needs. The construct assist human beings to move towards appreciation of meaning of life as well as self-actualization.

Limitations and future studies

Lower number of the participants can impose a threat to the present study. Another limitation is that the study solely relied on the comments the participants made during in-depth interviews. However, providing the readers with the in-depth and detailed picture of the construct under investigation, future studies should adopt a thorough perspective and look closely at the psychological, cultural, philosophical and social facets of the construct 'critical thinking'.

Empirical studies are also suggested to investigate the role of those vital factors related to professional development and its efficacy. As creativity is an ultimate goal of all scientific domains, the role of critical thinking should be enhanced in all academic premises to pave the ways to success. And as critical thinking has a great role in decision making, we strongly suggest the future researchers to study its influence on managers' way of thinking and their critical thinking behaviour. Also, we advise many researchers from many interdisciplinary courses in all academic domains to study critical thinking as a valuable skill for all aspects of life - in problem solving, teamwork strategies, workplace problem solutions, organizational conflicts, etc.

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