



## Developing a conceptual framework for critical thinking disposition in graduate students: A qualitative study from the point of view of experts

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### ABSTRACT

**Background and Aim:** Critical thinking is found in most of questions asked about higher education and professional development. Thus, it is crucial to pay attention to it during the education period and during acquiring it in the educational system, so that the graduates in addition to specialized knowledge also acquire the ability to reproduce and enhance the science. The aim of this study is to review the views and experiences of Iranian experts on the effective components in enhancing the critical thinking disposition. **Methods:** The present study examines and formulates a conceptual framework of critical thinking disposition in graduate students. The type of research is fundamental-theoretical with a qualitative approach. The statistical population of the study includes experts in various fields, working in the area of critical thinking. Eleven experts were selected purposefully using the snowball method and were interviewed. Semi-structured interviews were used to collect data on the components affecting critical thinking disposition. Interviews were often oral (except for one case in which they responded in writing form). They were recorded, transcribed, and analyzed using the fuzzy Delphi method. **Results:** Data analysis showed that among the initial indicators obtained from the research background (emotional regulation, level of assertiveness, moral intelligence, wisdom), two indicators of moral intelligence and wisdom were not approved by experts and among the approved variables, the highest priority belonged to emotional regulation variable. **Conclusion:** Four variables of questioning spirit, communication skills, cognitive abilities and learning style were extracted from the text of the interviews and added to the conceptual framework.



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## Introduction

Living in today's complex society requires people who are able to overcome the issues around them by relying on their thinking. They can also collect and combine the necessary information about their lives in a clear framework and perspective and evaluate them with good judgment and avoid impossible tasks (Alper, 2015). Cultivating the power of thinking is one of the main goals of education. Thinking about improving the thought process is at the heart of critical thinking (Paul, 1993; quoted by Yousefi and Gardanshekan, 2011). Also the tendency to think also refers to how much a person wants or is eager to perform a certain thinking skill (Norris, 1992; Valenzuela, Naito, and Cize, 2011). And it is necessary to understand how we think and how we can improve our thinking in academic contexts and everyday situations (Siegel, 1999). Critical thinking is one of the broadest concepts with a special place in education (Bakhtiarpour, 2012). Critical thinking is one of the most important educational principles of any country, and every country needs people with high critical thinking to achieve growth and prosperity. Because this type of thinking is of great importance for progress and solving problems (Gal et al., 2010), people with this skill will be able to organize knowledge and information (Dualsch, 2015). Higher education is one of the effective institutions in the all-round development of the country, which can provide the means for the continuation of learning and the active presence of students in various social, economic and cultural fields by creating the basis for the production and deepening of knowledge. Higher education aims to educate graduates who engage in scientific activity using different ways of thinking (Myers, 2015). Edward Glasser coined the term critical thinking. According to Glaser (1941), critical thinking is a cognitive skill that has three characteristics (1) a positive attitude toward thoughtful consideration of problems that people experience; (2) knowledge of logical reasoning strategies; and (3) the ability to implement the mentioned attitudes and strategies. Paul (1992) proposed critical thinking in two broad and limited meanings. Critical thinking is a set of technical skills used only to criticize opposing viewpoints.

Among the most important effects of globalization include Having the skill of critical thinking (the ability to criticize and criticize),

accepting diversity and pluralism in societies and respecting them, respecting one's own and other's rights, the ability to understand each other, the ability to cooperate and participate with others, respect the traditions and culture of other countries (Kadivar, 2004). Therefore, critical thinking is considered one of the essential elements for a person, and in this regard, one of the characteristics of a person with critical thinking is having appropriate interpersonal skills (Dale, 2004). Osborne and colleagues' study on Texas State College students emphasized the importance of critical thinking and interpersonal communication skills as a key component in the education of these people. Communication skills are those skills through which people can engage in interpersonal interactions and the communication process, A process during which people share their information, thoughts and feelings through the verbal and non-verbal exchange (Zali, 2008; Yousefi, 2006, quoted by Haddadi and Ebrahimi, 2019).

According to the mentioned materials and the importance of critical thinking in higher education, and the fact that there is still a lack of research in this regard, the purpose of the current research was to develop a conceptual framework of critical thinking orientation based on executive functions and learning style in higher education from the point of view of experts.

## Method

The present study examines and formulates a conceptual framework of critical thinking disposition in graduate students. The type of research is fundamental-theoretical with a qualitative approach. The statistical population of the study includes experts in various fields, working in the area of critical thinking. Eleven experts were selected purposefully using the snowball method and were interviewed. Semi-structured interviews were used to collect data on the components affecting critical thinking disposition. Interviews were often oral (except for one case in which they responded in writing form). They were recorded, transcribed, and analyzed using the fuzzy Delphi method.

## Results

After determining the benchmark indices of research variables, in order to determine the weight of different parameters, survey forms, including all parameters were prepared and provided to experts for completion. In the second step, the pairing matrix was calculated according to the initial results of experts' opinions. It should be noted that due to the high number of

identified indicators, only the opinion of the first expert has been presented.

According to the obtained results, it can be seen that the emotional regulation variable with a weight of 0.1267 had the highest weight. In the second place, the variable of courage level weights 0.1143. The average of the indicators is equal to 0.083 and it can be seen that the variables of moral intelligence with a weight of 0.0318 and wisdom, with a weight of 0.0237 are lower than the average and should be removed in the continuation of the research process. Questioning variables (searching, critical thinking, research ability), and communication skills (ability to receive and send messages, emotional control, listening skills, insight into the process and communication with determination) were extracted from the content of experts' opinions. These components were added by gaining a weight higher than the average.

### Conclusion

The purpose of this research is to develop a conceptual framework for critical thinking with an emphasis on executive functions and learning styles in higher education, according to experts. Therefore, in the first place, the researcher has identified the variables affecting critical thinking from the theoretical research literature, which primary indicators include: emotional regulation, daring level, moral intelligence, and wisdom. In the second phase, by conducting semi-structured interviews with experts in various fields, finally, the component of wisdom and moral intelligence was removed. The following four components (with ten indicators) were confirmed: emotional regulation, daring level, questioning with subscales (searching, critical thinking, research ability) and communication skills with subscales (ability to receive and send messages, emotional control, listening skills, insight into the process and communication with assertiveness). According to the obtained weights, the emotional regulation variable has the highest weight with a value of 0.1246.

Considering the importance of improving students' critical thinking tendency and the results of the present study, the following suggestions are presented regarding the improvement of students' critical thinking tendency:

- Planning and implementing of educational workshops regarding teaching methods and evaluating critical thinking for professors.
- Facilitating and encouraging professors and students who present articles on critical thinking in national and international conferences - Determining critical thinking as one of the research priorities and encouraging authors of

research articles related to critical thinking in prestigious domestic and international journals

- Designing and implementing a workshop titled critical thinking and problem solving for students Adopting an in-depth approach to learning provides a better basis for students to adopt a strategic approach. One of the effective factors in improving the learning-teaching process is the development of critical thinking in students. Therefore, teaching critical thinking will increase learning among students. Higher education can help motivate students and improve their learning by applying critical thinking skills.

- Students who use the cognitive regulation strategies of adapted emotion and more conscious mind have more critical thinking. Critical thinking training effectively increases adaptive cognitive regulation strategies and reduces maladaptive cognitive emotion regulation strategies.

- Improving the skill of daring behavior among students can greatly help increase their critical thinking and skepticism.

- The designed model of questioning increases critical thinking and understanding of concepts in students. Trained groups with questioning methods and techniques get better performance in critical thinking.

### Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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