

An Inquiry into the Critical Thinking Disposition of Turkish Pre-service Teachers: A Thematic Analysis of Theses

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Abstract: This study aims to examine the theses on the critical thinking disposition of teacher candidates in Turkey. The document review method was used, which deals with documents related to a specific subject with a qualitative approach. The data of the research were analyzed by content analysis method. The Turkish Council of Higher Education (TCHE) national database was searched using the keywords "teacher candidate" and "critical thinking disposition," and 30 accessible theses were included in the research. Theses reached within the scope of the research; It was analyzed according to the themes of "academic level," "year," "scope of the subject," "research method," "sample," "data collection tools," "analysis method" and "results." The thesis studies were examined by two experts and coded according to themes. The percentage of agreement among experts was determined as 95%. It was understood that many of the theses examined were master's theses and were completed in 2019. It was observed that the samples of most of the theses consisted of social studies and science teacher candidates. It was determined that the Relational and Comparative research models were used more in the theses examined. t-Test, ANOVA, and correlation techniques are the most preferred techniques for data analysis. The number of theses in which qualitative research models are used is quite limited. The reviewed theses have focused on demographic characteristics, media literacy, entrepreneurship, emotional intelligence, and 21st-century skills as the primary correlates of critical thinking disposition. According to the results of the research, several recommendations have been developed.

Keywords: Critical thinking disposition, Pre-service teachers, Graduate theses, Content analysis

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Introduction

Education is a fundamental element for the development and progress of society. The education system is where educators need to develop teaching methods and strategies to enable students to learn successfully. However, in today's world, simply imparting knowledge to students is no longer enough. Students should be equipped with critical thinking skills so that they have the necessary skills to analyze complex problems, generate new ideas, and evaluate different perspectives. Critical thinking is seen as an essential skill that increases the quality of life

of individuals (Elder & Paul, 2020).

Teachers should help students develop their critical thinking skills. However, providing critical thinking training to teacher candidates is also essential. Critical thinking can be taught by teachers who can think critically (Yeşilyurt, 2021). Critical thinking skills will not only contribute to the development of their students but also to their professional development. Therefore, research on how pre-service teachers can improve their critical thinking skills has increased recently. This research aims to examine the theses in which the critical thinking dispositions of teacher candidates are investigated. These theses will provide information about teaching strategies and methods to help prospective teachers develop their critical thinking skills.

Critical Thinking Skill and Disposition

Critical thinking is a mental process used to evaluate information and ideas. Critical thinking means considering and analyzing evidence, arguments, and other sources of information when thinking about a topic and coming to logical conclusions. It includes critical thinking, reasoning, analyzing, synthesizing, evaluating and problem-solving skills (Almusaed et al., 2022; da Silva Almeida & Helena Rodrigues Franco, 2011; Gacovska-Barandovska et al., 2020; Marques & Xavier, 2021; Orhan, 2023; Ye et al., 2021).

Critical thinking is a cognitive process that involves purposeful and reflective judgment and applying appropriate criteria and standards to evaluate what is said, done, or written by ourselves or others. According to Bailin, Case, Coombs, and Daniels (1999), critical thinking is a normative endeavor that relies on intellectual resources such as background knowledge, operational knowledge of standards, and specific mental habits. Dwyer, Hogan and Stewart (2014) stress the significance of critical thinking in adapting to the rapidly changing information landscape and suggest an integrated framework of learning outcomes based on existing theoretical models and recent conceptualizations of critical thinking. Duron, Limbach, and Waugh (2006) propose a five-step framework applicable to any educational or training setting to help learners develop critical thinking skills. Lai (2011) emphasizes the importance of explicit instruction, component skills, critical thinking dispositions, open-ended tasks, and real-world problem contexts to assess critical thinking. Critical thinking requires explicit instruction, appropriate frameworks, and assessment methods to be taught and cultivated effectively.

One of the factors required for critical thinking skills is that the individual tends to think critically (Yeşilyurt, 2021). Critical thinking disposition means the tendency of individuals to think critically. This disposition reflects one's thinking habits, preferences, and attitudes. Individuals with a high tendency to think critically can analyze information more effectively, understand different perspectives, evaluate arguments more critically, and achieve better results.

Critical thinking and critical thinking disposition are essential in many fields. Especially in education and business, individuals with critical thinking skills can solve the problems they face more effectively, make smarter decisions, and be more successful. In addition, critical thinking is also essential in social interactions

because having the skills to understand, evaluate and discuss other people's ideas helps to develop communication skills (Seferoğlu and Akbıyık, 2006).

Critical thinking disposition is a crucial component for individuals in various fields. Indra (2019) found critical thinking is crucial for nursing students to manage complex health situations and deal with patient issues effectively. Ennis (1996) argues that critical thinking disposition is at least as important as critical thinking abilities and suggests criteria for judging sets of them. Çubukçu (2006) found that Turkish teacher candidates with high critical thinking dispositions were more likely to be open-minded and analytical. Facione, Facione, and Giancarlo (2000) suggest that effective teaching must include strategies for building intellectual character rather than relying exclusively on strengthening cognitive skills. As a result, critical thinking and thinking disposition help individuals develop their thinking skills and contribute to their success. Therefore, critical thinking and thinking disposition are essential in developing individuals and society, especially in education.

The Importance of Critical Thinking Disposition for the Teaching Profession

A critical thinking disposition is essential for teacher education and the teaching profession. This trend is important for pre-service teachers and teachers to teach their students more effectively, to be more effective in students' learning process, and to develop students' critical thinking skills. In Turkey, courses on thinking skills have been added to the curricula to increase pre-service teachers' knowledge of critical thinking skills and improve their critical thinking disposition (Turkish Council of Higher Education (TCHE), 2007).

In teacher education, a critical thinking disposition can help pre-service teachers improve their learning and teaching skills. When trainee teachers develop critical thinking skills, they can better understand students' learning needs, select learning materials and present them more effectively. In addition, a critical thinking disposition also helps pre-service teachers develop their classroom management skills. Using their critical thinking skills, teacher candidates can better understand and resolve conflicts between students more effectively. For the teaching profession, critical thinking disposition helps teachers to better respond to students' needs. Critical thinking skills allow teachers to understand students' learning needs better, choose learning materials, and manage the learning process more effectively. Also, critical thinking skills help students develop their critical thinking skills. Using critical thinking skills, teachers can help students critically evaluate their ideas and thoughts. Critical thinking disposition can also contribute to the professional development of teachers. Critical thinking skills help teachers develop their ability to solve problems they encounter in the classroom. Also, critical thinking skills can help teachers communicate and collaborate more effectively with colleagues and parents.

Studies have shown that teacher candidates generally have positive critical thinking dispositions. Şenşekerci and Kartal (2010) found that the critical thinking dispositions of teacher candidates improved for their university education. Karagöl and Bekmezci (2015) found that critical thinking dispositions of teacher candidates did not differ according to gender or type of school but according to the field of study. Bilen, Ercan and Akcaozoglu

(2013) found that the critical thinking disposition of teacher candidates was positive and differed based on gender, class levels, and departments of teacher candidates. Finally, Çubukçu (2006) found that Turkish teacher candidates had high levels of open-mindedness and analyticity but lower levels of inquisitiveness and systematicity.

As a result, a critical thinking disposition is essential for teacher education and the teaching profession. Critical thinking skills help teachers better understand students' learning needs, choose learning materials better, and develop students' critical thinking skills. In addition, critical thinking skills also contribute to the professional development of teachers. Therefore, teacher education programs and teachers' professional development programs should be designed to develop critical thinking skills.

Purpose of the Research

This study is critical because it provides data-based information for developing pre-service teachers' critical thinking skills. Critical thinking skills help students cope with future challenges and ensure continuous learning and development. This study will contribute to the current research on critical thinking dispositions of pre-service teachers and will encourage further research in this area. By emphasizing the importance of providing pre-service teachers with critical thinking skills, future teachers can be helped to have these skills.

Pre-service teachers, curriculum developers, and those who do research in education will benefit from this study. Pre-service teachers can learn the importance of critical thinking skills and the methods that can be used to develop these skills. Curriculum developers can use the findings from this study to develop strategies and methods to create a more effective learning environment. Determining the factors that pre-service teachers' critical thinking dispositions are related to can provide a more qualified preparation for the education process. In addition, determining the general trends of the research on the subject can guide the studies to be done later. In this way, qualified studies that explain the development of critical thinking disposition in teacher candidates can be carried out.

In conclusion, this study will provide data on developing pre-service teachers' critical thinking dispositions. It will be an essential resource for experts in the field of education. The results of this study will provide a helpful roadmap for the training of teacher candidates, the development of curricula, and research in the field of education. This study aims to examine the postgraduate studies related to the critical thinking disposition of teacher candidates in Turkey. Accordingly, answers to the following research questions were sought.

- 1- What is the distribution of postgraduate studies examining the critical thinking dispositions of teacher candidates according to academic level in Turkey?
- 2- How is the distribution of postgraduate studies examining the critical thinking dispositions of teacher candidates in Turkey over the years?
- 3- How is the distribution of postgraduate studies examining the critical thinking dispositions of teacher candidates in Turkey according to the scope of the subject?

- 4- What is the distribution of postgraduate studies examining the critical thinking dispositions of pre-service teachers in Turkey according to the research model?
- 5- What is the distribution of postgraduate studies examining the critical thinking dispositions of pre-service teachers in Turkey according to the sample group?
- 6- What is the distribution of postgraduate studies examining the critical thinking dispositions of pre-service teachers in Turkey according to data collection tools?
- 7- What is the distribution of postgraduate studies examining the critical thinking dispositions of pre-service teachers in Turkey according to analysis techniques?
- 8- How is the distribution of postgraduate studies examining the critical thinking disposition of teacher candidates in Turkey according to the variables associated with the critical thinking disposition?

Method

This study utilized a qualitative document review approach, focusing on documents relevant to a specific subject matter. The collected research data were analyzed using the content analysis method, which involves descriptively evaluating the trends and findings of studies (Çalık & Sözbilir, 2014). Using the descriptive content analysis method, this study examined postgraduate research on the critical thinking dispositions of teacher candidates in Turkey between 2018-2022, aiming to identify the general trends and patterns in this field.

The Turkish Council of Higher Education (TCHE) national database was searched using the keywords "teacher candidate" and "critical thinking disposition," and 30 accessible theses were included in the research. Theses reached within the scope of the research; It was analyzed according to the themes of "academic level," "year," "scope of the subject," "research method," "sample," "data collection tools," "analysis method" and "results." The thesis studies were examined by two experts and coded according to themes. The percentage of agreement among experts was determined as 95%. Theses examined within the scope of the research are marked with "*" in the bibliography.

Results

This section gives descriptive information about postgraduate studies on teacher candidates' critical thinking dispositions. Studies on the subject were examined according to the themes of "academic level," "year," "scope of the subject," "research method," "sample," "data collection tools," "analysis method," and "results."

Academic Levels of Theses

It is understood that 90% of the theses examined within the scope of the research are master's theses, and 10% are doctoral theses. It has been observed that most of the theses examining the critical thinking dispositions of teacher candidates are master's theses.

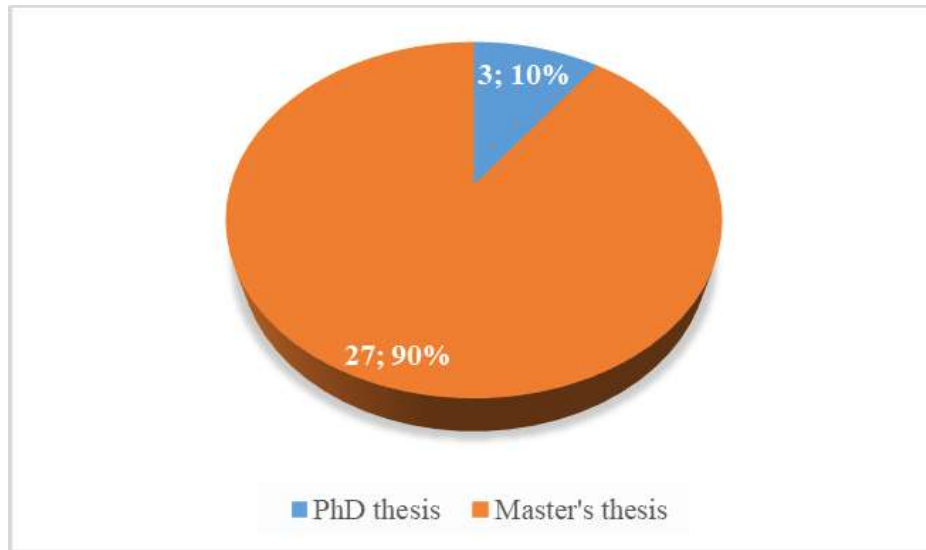


Figure 1. Figure 1. Distribution of Theses by Academic Level

Distribution of Theses by Years

When Figure 2 is examined, it is understood that 10% of the theses examining the critical thinking dispositions of teacher candidates were completed in 2018, 43.3% in 2019, 16.7% in 2020, 20% in 2021, and 10% in 2022. It is striking that most of the theses examining the critical thinking disposition of teacher candidates were carried out in 2019.

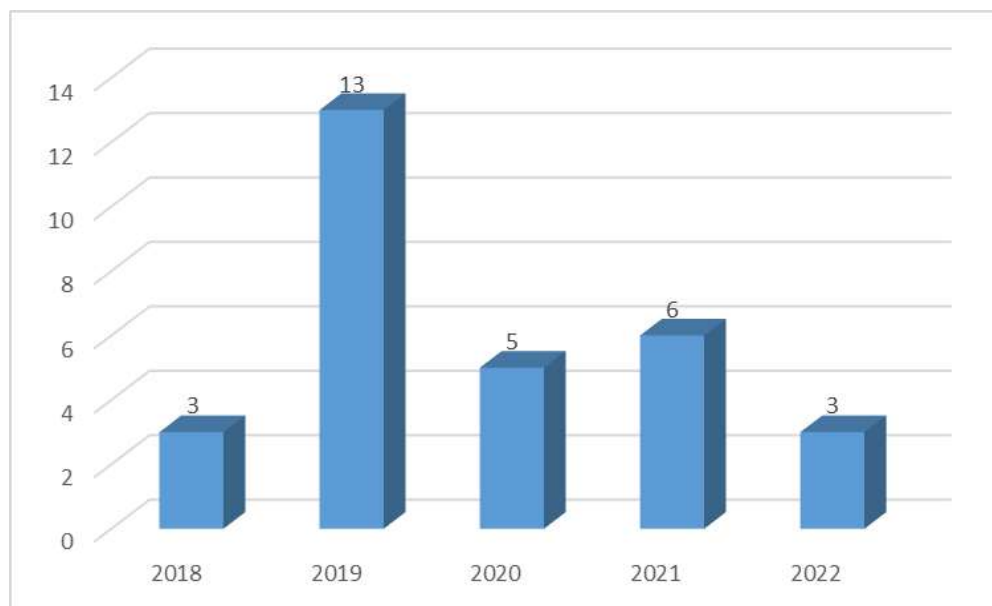


Figure 2. Distribution of Thesis by Years

Subject Scope of Theses

When the distribution of the theses examining the critical thinking disposition of teacher candidates according to the scope of the subject was examined, it was observed that the subject scope of the majority was in the "survey/case study" type. There are a few theses with the subject scope of "The impact of teaching" and "Scale adaptation." Two theses with varying scopes of the subject have been identified.

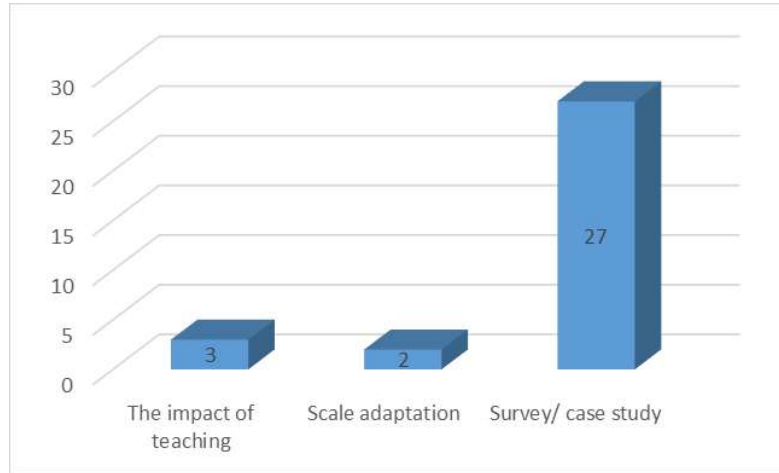


Figure 3. Distribution of Thesis by Subject Scope

Research Methods Used in Theses

It was observed that the quantitative research approach was adopted in 27 (90%) of the theses examined within the scope of the research. It was determined that 3 (10%) of the theses adopted a mixed research approach. There is one thesis that uses only qualitative research design. There were three studies in the experimental research type. Most of these are relational and comparative research types (Table 1).

Table 1. Findings Related to Research Methods Used in Theses

Themes	Codes	f
Experimental	Semi-experimental	2
	Fully experimental	1
	Survey	0
Non-experimental	Relational	22
	Descriptive	0
	Comparative	25
	Latitudinal/Longitudinal	0
Interactive	Case Study	1
	Action Research	0
	Phenomenological	2
	Grounded Theory	0
Non-interactive	Document analysis	0
Mixed	Qualitative/ quantitative	3

Sample Groups of Theses

Science (10.9%) and social studies (10.9%) pre-service teachers were selected as samples in a large proportion of theses examining the critical thinking dispositions of pre-service teachers. There are also thesis studies in which physical education, English, mathematics, music, preschool, art, classroom, and Turkish teacher candidates are selected as samples. It was determined that the number of theses that included teacher candidates from different branches in its sample was six (Figure 4).

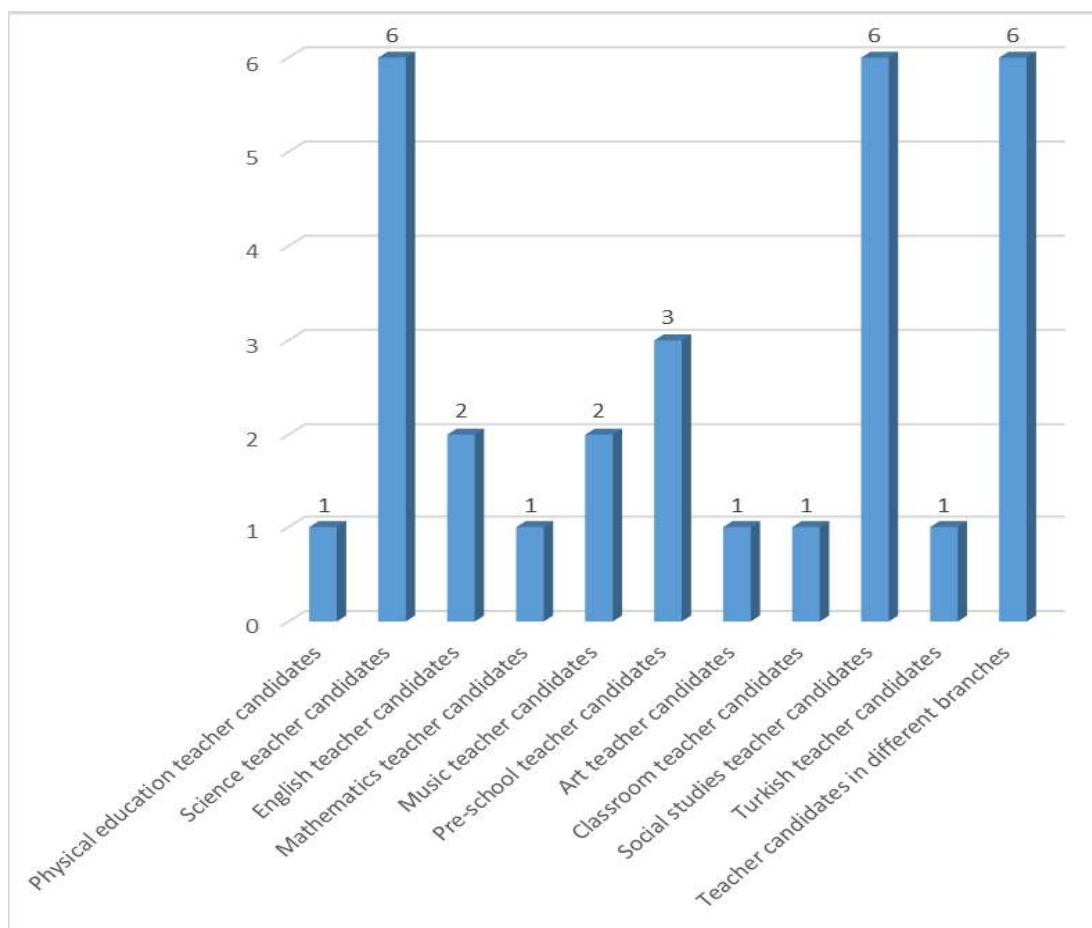


Figure 4. Distribution of Thesis by Sample Groups

Data Collection Tools Used in Theses

According to the results obtained, "scale" was used as a measurement tool in most of the theses examined within the scope of the research. It has been determined that data collection tools such as interviews and observations used to obtain qualitative data are less preferred. The findings regarding the data collection tools used in the theses are given in Figure 5.

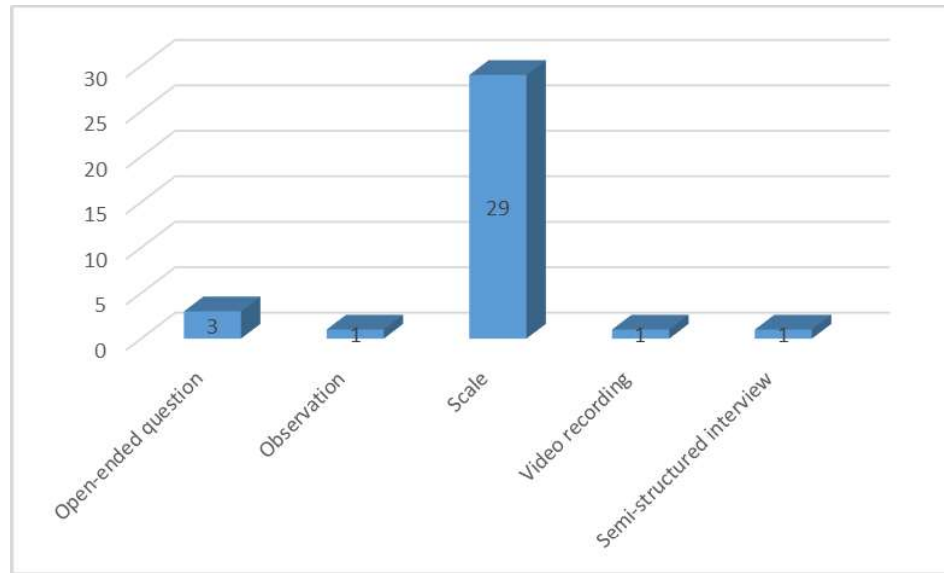


Figure 5. Distribution of Thesis by Data Collection Tools

Data Analysis Methods Used in Theses

Most of the theses examined in the research are in the type of quantitative research. As a natural consequence, quantitative analysis techniques were used more in theses. Quantitative analysis techniques include ANOVA, correlation, t-Test, and non-parametric analysis techniques. It is striking that more advanced quantitative analysis techniques, such as path and regression analysis, are used less frequently. It has been observed that descriptive and content analysis approaches are used in a small number of qualitative studies.

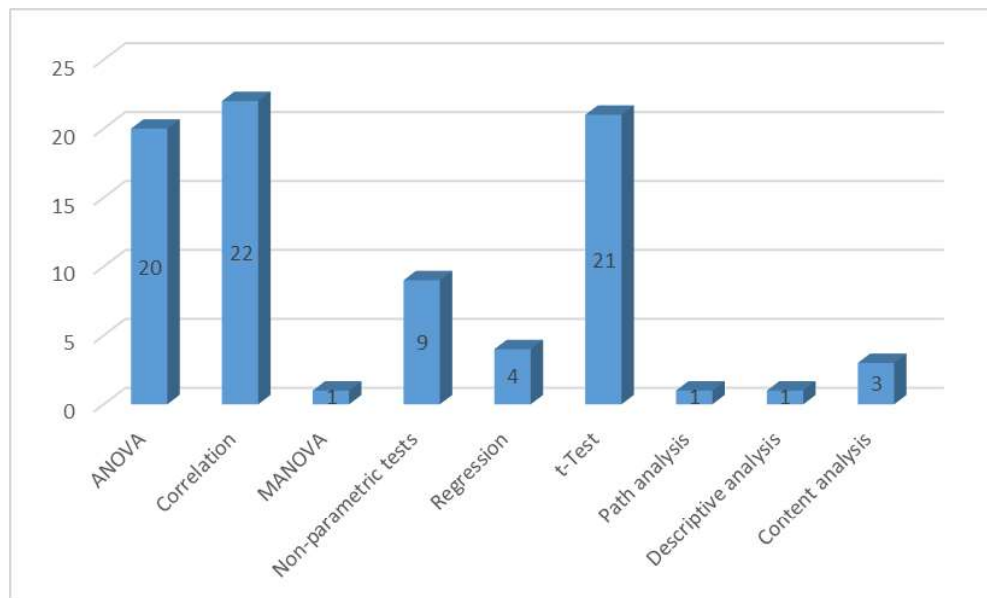


Figure 6. Distribution of Thesis by Data Analysis Methods

Variables Associated with Critical Thinking Tendency in Theses

The theses under scrutiny have investigated critical thinking disposition to 24 distinct variables. Specifically, the reviewed theses have predominantly focused on demographic characteristics, media literacy, entrepreneurship, emotional intelligence, and 21st-century skills as the primary correlates of critical thinking disposition. However, in addition to these variables, other factors such as innovativeness tendency, gender roles, creative thinking, personality type, thinking styles, reasoning, and academic self-efficacy have also been associated with critical thinking disposition (Figure 7).

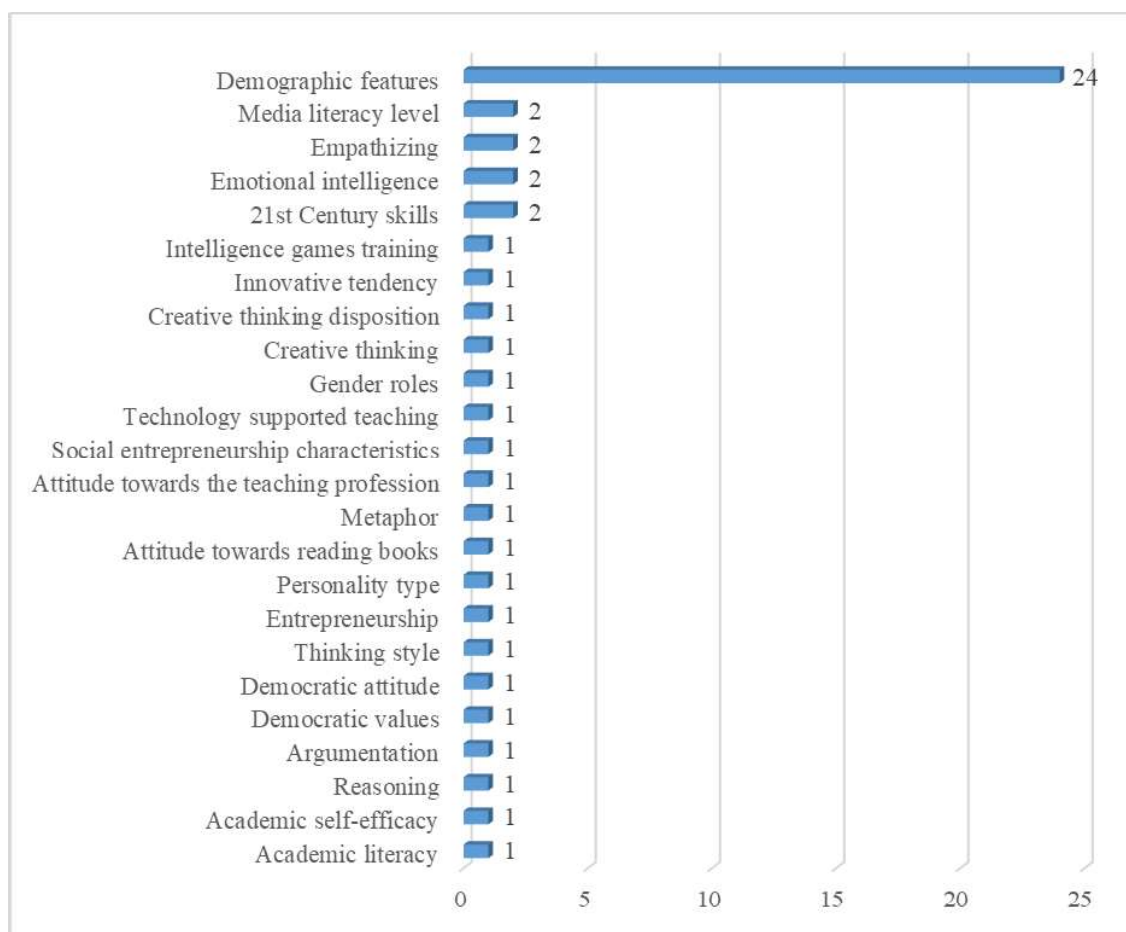


Figure 7. Distribution of Thesis by Variables Associated with Critical Thinking Tendency

Conclusion and Recommendations

This research examined thirty postgraduate studies on the critical thinking disposition of teacher candidates in Turkey in the last five years. Studies on the subject were examined according to the themes of "academic level," "year," "scope of the subject," "research method," "sample," "data collection tools," "analysis method," and

"results." In this way, the general tendency of the studies on critical thinking disposition in teacher candidates has been revealed.

According to the results obtained, 90% of the theses examined within the scope of the research are master's theses, and 10% are doctoral theses. It has been observed that most of the theses examining the critical thinking dispositions of teacher candidates are master's theses. It is advisable to conduct more doctoral thesis studies on the subject. In this way, the factors related to the tendency of critical thinking in teacher candidates can be discussed in more detail.

Another result obtained in the study is that 10% of the theses examining the critical thinking dispositions of teacher candidates were completed in 2018, 43.3% in 2019, 16.7% in 2020, 20% in 2021, and 10% in 2022. It is striking that most of the theses examining the critical thinking disposition of teacher candidates were carried out in 2019. According to these results, it has been observed that the number of studies on critical thinking disposition in teacher candidates has decreased in recent years.

According to the results obtained, the quantitative research approach was adopted in 27 (90%) of the theses examined within the scope of the research. It was determined that 3 (10%) of the theses adopted a mixed research approach. There is one thesis that uses only qualitative research design. There were three studies in the experimental research type. The majority of these are relational and comparative research types. Increasing the number of studies using qualitative research design can be recommended. These studies can provide the opportunity to reach deeper information obtained from different sources on the subject.

Another result obtained in this study was that the subject scope of the majority of the theses was in the "survey/case study" type. There are a few theses with the subject scope of "The impact of teaching" and "Scale adaptation." Two theses with varying scopes of subjects have been identified. Surveys or case studies systematically compile, summarize and analyze available information and data about a particular issue, problem, or area. Such studies are undertaken for various purposes, such as gaining a deeper understanding of the subject, providing a basis for planning future research, and guiding the development of policy or practice (Kitchenham, 2004). However, surveys or case studies have some weaknesses. First, the results of such studies are based on data collected by a selective method that determines the scope of the research and, thus, often do not provide a complete picture. Also, inferences based on such studies' results may be less conclusive than conclusions from more in-depth research. However, surveys or case studies are often helpful for summarizing current knowledge and data in a research area and providing a basis for future research (Grant & Booth, 2009). In this respect, it can be recommended to conduct more studies examining critical thinking disposition in pre-service teachers apart from screening/situation analysis.

Science (10.9%) and social studies (10.9%) pre-service teachers were selected as samples in a large proportion of theses examining the critical thinking dispositions of pre-service teachers. There are fewer thesis studies in which physical education, English, mathematics, music, preschool, art, classroom, and Turkish teacher

candidates were selected as samples. No study has examined the critical thinking dispositions of teacher candidates studying in German, computer and instructional technologies, special education, guidance, and psychological counseling departments. Conducting studies examining the critical thinking dispositions of teacher candidates in these departments can be recommended.

Most of the theses examined in the research are in the type of quantitative research. As a natural consequence, quantitative analysis techniques were used more in theses. Quantitative analysis techniques include ANOVA, correlation, t-Test, and non-parametric analysis techniques. It is striking that more advanced quantitative analysis techniques, such as path and regression analysis, are used less frequently. It has been observed that descriptive and content analysis approaches are used in a small number of qualitative studies.

Another result obtained in this study is that the thesis under scrutiny has investigated critical thinking disposition to 24 distinct variables. Specifically, the reviewed theses have predominantly focused on demographic characteristics, media literacy, entrepreneurship, emotional intelligence, and 21st-century skills as the primary correlates of critical thinking disposition. However, in addition to these variables, other factors such as innovativeness trends, gender roles, creative thinking, personality type, thinking styles, reasoning, and academic self-efficacy have also been associated with critical thinking disposition. The number of studies aiming to increase the critical thinking disposition of teacher candidates should be increased. In addition, it may be recommended to conduct studies examining the relationship between critical thinking disposition in pre-service teachers and high-level thinking skills such as analytical thinking, divergent thinking, and reflective thinking.

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