
Pre-service English Language Teachers' Critical Thinking Tendencies and Their Teaching-Learning Conceptions

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Abstract: As critical thinking is considered a conscious and mental process and also introduced in educational contexts, critical thinking skills and practices can be related to teachers' conceptions of teaching-learning. Thus, this study firstly aimed to reveal pre-service teachers' level of critical thinking and their teaching-learning conceptions, and then analyze the correlation between these two variables. The study was conducted at Çanakkale Onsekiz Mart University with Department of English Language Teaching 3rd and 4th grade pre-service teachers. On the strength of the study's aim, it was designed as a non-experimental, mixed method with single and correlational scanning models. Therefore, the data were collected through the "California critical thinking tendency scale," and the "Teaching-learning conceptions scale", and finally open-ended questions prepared by the researcher related to transformational conception. For the data analysis, descriptive and correlational statistics were used via SPSS Package Program v.21.0. According to the results of the study, while pre-service teachers' level of critical thinking is moderate, they are more inclined to the constructivist conception and there is a correlation between these two variables. The obtained data from open-ended questions reveal that most of the pre-service teachers relate transformational concepts with social development, conscious individuals and democratic values and they want to use this kind of conception during their teaching profession.

Keywords: Critical thinking, pre-service teacher, teaching-learning conceptions, tendency transformational teaching.

İngilizce Öğretmen Adaylarının Kritik Düşünme Eğilimleri ve Öğretme-Öğrenme Anlayışları

Özet: Eleştirel düşünme bilinçli ve zihinsel bir süreç olarak kabul edildiği ve eğitim bağlamlarında tanıtıldığı için eleştirel düşünme becerileri ve uygulamaları öğretmenlerin öğretme-öğrenme anlayışlarıyla ilişkilendirilebilir. Bu nedenle, bu çalışma öncelikle öğretmen adaylarının eleştirel düşünme düzeylerini ve öğretme-öğrenme anlayışlarını saptamayı ve bu iki değişken arasındaki ilişkiyi incelemeyi amaçlamıştır. Araştırma, Çanakkale Onsekiz Mart Üniversitesi İngiliz Dili Eğitimi 3. ve 4. sınıf öğretmen adayları ile gerçekleştirilmiştir. Çalışma, amacına uygun olarak deneysel olmayan, karma yöntem ile tek ve ilişkisel tarama modelleri ile tasarlanmıştır. Veriler, "Kaliforniya eleştirel düşünme eğilimi ölçeği," "Öğretme-öğrenme anlayışları ölçeği", ve araştırmacı tarafından "dönüşümsel anlayış" ile ilgili hazırlanan açık uçlu sorular aracılığı ile toplanmıştır. Verilerin analizinde, SPSS 21.0 paket programı aracılığıyla tanımlayıcı ve korelasyonel istatistikler kullanılmıştır. Araştırmanın bulguları, öğretmen adaylarının eleştirel düşünme düzeyi orta düzeyde, yapılandırmacı anlayışa da daha meyilli olduklarını ve bu iki değişken arasında ilişki olduğunu vurgulamıştır. Açık uçlu sorulardan alınan cevaplar, öğretmen adaylarının dönüşüm kavramını toplumsal gelişim, bilinçli bireyler ve demokratik değerlerle ilişkilendirdiklerini ve bu tür anlayışı öğretmenlik mesleği boyunca kullanmak istediklerini ortaya koymaktadır.

Anahtar Sözcükler: Eğilim, eleştirel düşünme, dönüşümsel öğretim, öğretmen adayı, öğretme-öğrenme anlayışları.

1. Introduction

The 21st century has brought social, political, economic, and educational changes with it and the changes in these fields can mutually impact each other. Also, with the demand of people toward the field of education, people have tried to gain some skills to think critically in response to new situations in social lives, and it makes criticism necessary for the continuity and effectiveness of the society. On the other hand, language and education is an important factor for the arrangement of political, social, economic assets that exist in the world. Therefore, it can be said that these fields are directly or indirectly interconnected. Discussing the social, political and economic contents of education, Freire (1970) asserts critical pedagogy and argues that educational systems are political. In this respect, it can be said that language learning and teaching should be considered not only learning and teaching structures but also a way of thinking of societies. In education, the changes also led the system to examine their constituents such as educational objectives, and teachers' and learners' roles. On this subject, Giroux (1997) associates the rise of hidden social, economic, and political assumptions with critical pedagogy and its core feature as critical thinking skills. As a result, awareness of pre- and in-service teachers should be improved from this perspective and efforts should be made for increasing their higher order thinking skills about how to develop a better society through education. To do this, especially pre-service teachers' level of critical thinking skills can contribute to the success of transferring this skill to future generations.

With the importance of this issue, it should be stated that studies showing the importance of critical thinking in teacher education and with different results in different contexts are increasing. While some of the studies only aimed to reveal pre-service teachers' critical thinking tendencies, some are investigating it with different variables such as their values, educational beliefs and educational philosophies adopted. However, no research study has been found in relevant literature to examine the critical thinking dispositions of pre-service teachers and their teaching-learning conceptions together. From this gap, firstly, the degree of having critical thinking skills, and then to what extent these skills have an impact on learning and teaching conceptions should be determined. Therefore, this study basically aims to analyze the relation between critical thinking tendencies of pre-service English language teachers and their teaching- learning conceptions.

1.1. Critical Thinking

With each passing day, new global existences increasingly are working their way into the deepest arrangements of people's lives in terms of social, political, cultural, economic, and environmental existences with intense conclusions for thinking human rights, conflicts and politics. These conflicts can create a dynamic of increasing change with threats and dangers. Through these dynamics, people are needed to criticize realities and different points of views, so the concept of critical thinking has been getting more popular than ever before. With this concept, many educators define what elements critical thinking includes. For instance, Paul and Elder (2005) define critical thinking as a restructuring process of analyzing and evaluating thinking to improve it. Also, Cottrell (2005) emphasizes cognition and defines it according to this term as a complex and cognitive process associated with many skills and attitudes including alternative point of views, arguments, persuasive devices, and sensible assumptions in a clear and structured way. On the other hand, Epstein (2006, p. 1) uses metaphors in his definitions and defines it directly in relation to critical pedagogy and reasoning.

“Thinking critically is a defense against a world of too much information and too many people trying to convince us. But it is more. Reasoning is what distinguishes us from beasts. Many of them see better, can hear better, and are stronger. But they cannot plan, they cannot think through, they cannot discuss in the hopes of understanding better.”

As it is understood from this point of view, it can be said that critical thinking is a kind of reaction towards socio-political, economic problems and forces and includes analysis, evaluation within the frame of cognition. And through this process, people's way of thinking can be moved forward in the ongoing search for better judgments and decisions.

1.2. Critical Thinking in Teacher Education Contexts

Critical thinking is a general concept; however, especially it should be considered also as a part of education and it can be said that education is a thinking itself because education can shed a light for societies' continuity. As mentioned before, critical thinking requires a set of skills and attitudes. In this respect, modern education aims to improve these skills and attitudes, and to do this, there should be more studies about investigating future teachers' tendencies toward critical thinking as a basic step. According to Williams (2005), critical thinking is crucial for the teacher education field, in that, for democratic education, it is essential for all disciplines and can affect entire society. Teachers as a core element of educational systems are required to have some proficiency for their instructions with new learning-teaching conceptions. For instance, Kaye and Ragusa (1998) emphasize promoting critical thinking is important for teacher education, and if critical thinking practices are not given priority in teacher education programs, it is not possible that pre-service teachers can be capable of thinking critically. Therefore, pre-service teachers' critical thinking tendencies should be investigated, and the practices conducted in teacher education programs should be designed or arranged in the light of recent literature.

In relevant literature, there are studies showing the importance of critical thinking in teacher education by revealing critical thinking tendencies of pre-service teachers with different results in different contexts. Şahin et.al., (2013) reveal critical thinking tendencies of science technology and mathematics pre-service teachers with their professional value perceptions and results showed that critical thinking tendencies of them was low and their value points were moderate. Another study was conducted by Kong (2001) in Singapore and it investigates the effect of the thinking module applied on critical thinking tendencies of pre-service teachers, and results show that group applied thinking module is significantly higher than the other group not applied. On the other hand, Coşkun and Altinkurt (2016) examined the relationship between pre-service teachers' critical thinking tendencies and their values, and it is found that the values of sensitivity, responsibility and respect are important determinants of critical thinking tendency. Palavan (2020) identified the critical thinking skills and the critical thinking dispositions of prospective teachers and their effects of critical thinking education. According to these, critical thinking education in the faculty contributed to their critical thinking skills and dispositions.

While there are studies showing the relation critical thinking tendencies with different variables such as metacognitive awareness of reading strategies and reading habits (Ulu, 2019), and the impact of dispositional mindfulness on critical thinking tendencies (Chen, 2019), there are also studies revealing only pre-service teachers' critical thinking tendencies (e.g., Cansoy, Parlar & Polatcan, 2018; Demiral, 2018; Özmen, 2006). However, it should be said that pre-service teachers' affective roles such as perceptions, beliefs and accordingly attitudes with their critical thinking tendencies are also important and it should be investigated their critical thinking tendencies in teacher education programs according to this. There are studies investigating learning approaches and styles (e.g., Beşoluk & Önder, 2010) and their educational beliefs with their critical thinking tendencies of teacher candidates. However, in the literature, there is no study examining their teaching-learning conceptions in relation to their critical thinking.

All in all, from all these studies on critical thinking, it should be concluded there is a need for more studies including teacher profession specifications and abilities. There is much available research about

critical thinking; it seems that it has not examined the relation, if any, between teachers' effectiveness and being a critical thinker on this issue (Loacker, 1984).

1.3. Teaching-Learning Conceptions

With changes in society, many educators have tried to alter their educational approaches through teaching and learning. Also, through these changes, the shift from traditional approaches to teaching and learning gave new insights to the teachers' roles. Before mentioning these roles, the conceptions on teaching and learning should be explained. When looking at the constructivist way of teaching-learning, it can be said that it is widely used in curricula and accordingly in classroom settings. It is an approach that "learners play an active role in 'constructing' their own meaning" (Peters, Cornu & Collins, 2003, p. 3). However, in the traditional way of teaching-learning, the focus is on the didactic manner and their role as a source of information (Brooks and Brooks, 1999). It can be understood that while teachers' role in the constructivist way is to prepare a learning environment in which learners can interact with their peers and with this, they can construct their own meaning, teachers' role in traditional way is to transmit knowledge to learners and look for correct knowledge.

As already explained, traditional and constructivist approaches of teaching and learning include several principles that show integration of these principles may lead us to see different notions. In accordance with these notions, Slavich and Zimbardo (2012) explain that there are other modern approaches apart from mostly known ones to teaching and learning. For instance, transformational teaching is a new approach in current research studies.

Transformational teaching-learning is as an act of teaching planned to alter learners socially, academically and spiritually and it begins with learners involving understanding in depth and high expectations (Rosebrough & Leverett, 2011). From this definition, it should be said that transformational teaching and learning, apart from contemporary approaches, lead learners to transform their feelings, experiences mutually. Accordingly, the aim is to transform learners by teaching both values and social knowledge while helping them to think critically. In this respect, teachers' role is conceptualized as both personal and social change agent in transformational teaching (Slavich, 2005). However, in the literature, the studies are mostly about showing its theoretical underpinnings, implications for instructions and basic methods (Johnson-Bailey & Alfred, 2006; Goodfellow & Sumsion, 2000; Rosebrough & Leverett, 2011; Slavich & Zimbardo, 2012; Thorburn, 2017).

Also, there are few studies regarding teaching-learning conceptions of pre-service teachers with different variables. For instance, Turan and Koç (2019) investigated the relationship between pre-service teachers' teaching-learning conceptions and their reflective thinking tendencies, and while the traditional concept of teaching and learning has not any significant relationship with reflective thinking and its concepts, the constructivist concept has a correlation with reflective thinking tendencies of student teachers. Apart from these, there are also studies focusing on teachers' roles in transformational teaching. For instance, according to Shor (1992), in his book as 'Empowering Education: Critical Teaching for Social Change', teachers are mediators who can bridge between authorities, explicit knowledge and learners by connecting learners' development to powers and values in a society. Therefore, as understood from these studies, it should be given more emphasis on teacher educators and accordingly teacher candidates on this approach in different contexts.

2. Method

This part of the research paper aims to give information about the design of the research, participants, and data collected through surveys with their procedures for collection and analysis. Also, this study aims to analyze the relationship between pre-service teachers' critical thinking tendencies and their teaching-learning conceptions. Therefore, in accordance with the aim of the study, the following questions will be answered:

1. What is the level of pre-service English language teachers' critical thinking tendencies?
2. What are the pre-service English language teachers' teaching-learning conceptions?
3. Is there a statistically significant relationship between pre-service English language teachers' critical thinking tendencies and their teaching-learning conceptions?

2.1. Research Design

The present study was designed as a mixed method research study in which it aims to analyze the relationship between pre-service teachers' critical thinking tendencies and their teaching-learning conceptions through correlational analysis. In this mixed-method study, open-ended questions were used to analyze pre-service teachers' perceptions about transformational teaching and learning. In accordance with the aim of the study and the research questions, both correlational and single scanning models were used. While for the first and second research questions, a single scanning descriptive model with mean, standard deviation and minimum-maximum values for searching answers to the third question, correlational model was used.

2.2. Participants

In this study, the population consists of 75 third and fourth-grade pre-service English language teachers studying at Çanakkale Onsekiz Mart University, English Language Teaching Department of Education Faculty. In terms of representativeness, the third and fourth grade pre-service teachers were selected in that they took lessons about the field under equal circumstances. The participants were 23 from the third and 52 from the fourth-grade pre-service teachers. From a total of 75 participants, 52 of them were female and 23 of them were male. Their age range was between 20 and 29 and more than half of the participants were 22 with %57.3. While collecting data, it was mentioned that participating in the survey is optional and their comments will only be used for scientific study and never be shared with third parties. Additionally, it was given information about the aim of the study.

2.3. Data Collection

In the scope of the research, data were collected both quantitative and qualitatively through questionnaires and open-ended questions. From these data collection tools, quantitative data were collected through two different questionnaires. One of them is "California critical thinking tendency scale" developed by Facione, Facione and Giancarlo (1998) and adapted by Kökdemir (2003). The other is "teaching-learning conceptions scale" developed by Chan and Elliot (2004) and adapted by Aypay (2011). Also, for qualitative data, 2 open-ended questions originated from Kunkel-Pottebaum's (2013) study.

Firstly, in order to determine pre-service teachers' critical thinking tendency, the scale was used, which was developed by Facione, Facione and Giancarlo (1998) and adapted by Kökdemir (2003). The scale includes 6 sub-scales: a) truth-seeking (7 items) b) open-mindedness (12 items) c) analyticity (10 items) d) systematicity (6 items) e) self-confidence (7 items) f) inquisitiveness (9 items). It included 6-points Likert type from "strongly disagree" to "strongly agree" and it was between 1 and 6. Concerning the

reliability of the scale, Kökdemir (2003) analyzed that the scale's overall Cronbach Alpha reliability coefficient is .88. This indicates that the scale is reliable in terms of applicability.

With the aim of determining the pre-service teachers' teaching-learning conceptions, the scale was adapted to the Turkish context by Kökdemir (2003). This scale includes 2 sub-scales: a) traditional (18 items) b) constructivist (12 items). Scale items are in five-point Likert type (5 = strongly agree- 1 = strongly disagree). The high score taken from the sub-factors is interpreted as the conception of the factor it represents. In terms of reliability, the scale's Cronbach Alpha reliability coefficient is .84 which is applicable.

In relation to critical thinking variables and new types of teaching-learning concepts, the open-ended questions are prepared by the researcher with the help of Kunkel-Pottebaum's (2013) study. These questions are aimed to analyze pre-service teachers' perceptions about transformational teaching and learning. For the data collection, these scales and open-ended questions were applied to the participants at once by the researcher in the classroom within one day. Firstly, the aim of the study was explained, and then the information was given about how it would be applied. Additionally, it was highlighted that data collection tool does not have grade value and their attention is important for the researcher to reach the aim of the research. Finally, a questionnaire was applied to the volunteer participants.

2.4. Data Analysis

The data obtained within the scope of the study were analyzed by using IBM SPSS Package Program v.21.0. To identify the data's normality distribution, skewness and kurtosis values were analyzed. According to results of data obtained from two different scales, it was non-normally distributed. Therefore, it transformed variables into normal distribution with skewness of 0.34 (SE = 0.28) and kurtosis of 0.27 (SE = 0.55) by reference of Tabachnick and Fidell (2013) with the range of ± 1.5 normality values. As a result, two data obtained were excluded from the overall data and with this way, a parametric test was decided to use. When looking at the analysis of the questions, for the first and second research questions which is for analyzing pre-service teachers' the level of critical thinking tendencies and their teaching-learning conceptions, descriptive statistics with frequency, mean and standard deviation was used. For the third research question which is for analyzing the correlation between pre-service teachers' critical thinking tendencies and their teaching-learning conceptions, Pearson bivariate correlation was used. Briefly, throughout the study, this sequence was followed.

3. Findings

In this part of the study, the study's statistical analysis results collected through scales were presented. For the analysis of the 1st research question, descriptive statistics was utilized with mean and standard deviation. The analysis results of the 1st research question which tries to examine the level of pre-service teachers' critical thinking tendencies presented in Table 1 and shows that participants' mean value in terms of their critical thinking tendencies are on the level of moderate ($M = 3.86$, $SD = 0.39$). At the same time, while participants received the highest average from analyticity ($M = 4.85$, $SD = 0.59$) from the critical thinking sub-dimensions, the lowest average was from open-mindedness ($M = 2.64$, $SD = 0.65$). When looking at the participants' teaching-learning conceptions concerning the 2nd research question, Table 1 presents that their mean values on constructivist conception ($M = 4.53$, $SD = 0.42$) is quite higher than traditional conception ($M = 2.38$, $SD = 0.57$).

Table 1.

Descriptive statistics on participants' critical thinking tendencies and teaching-learning conceptions with sub-scales (N = 75)

Variables		Mean	SD
Critical thinking tendency	Overall mean	3.86	0.39
	Truth-seeking	3.23	0.77
	Open-mindedness	2.64	0.65
	Analyticity	4.85	0.59
	Systematicity	3.60	0.63
	Self-confidence	4.20	0.82
	Inquisitiveness	4.77	0.62
Teaching-learning conceptions	Traditional	2.39	0.57
	Constructivist	4.53	0.42

In response to the 3rd research question which aims to reveal the correlation between participants' critical thinking tendencies and their teaching learning conceptions, Pearson bivariate correlation was utilized. Therefore, Table 2 below presents the correlations between participants' mean scores of critical thinking tendencies and both overall mean scores of teaching-learning conceptions and with its sub-scales' mean scores. According to the analysis results of correlation, there is a statistically significant relationship between these two variables on the level of $p < .001$ ($r = .365$, $p < .001$). However, when it is looked at the sub-scales mean scores' analysis, it indicates that while there is a statistically significant correlation between participants' critical thinking tendencies and traditional conceptions on the level of $p < .05$ ($r = .249$, $p = .032$), there is no statistically significant correlation between their critical thinking tendencies and constructivist conceptions.

Table 2.

Participants' critical thinking tendencies with sub-scales in relation to teaching-learning conceptions with sub-scales (N = 75)

Variables		T-L conceptions	Constructivist	Traditional
Critical thinking tendencies	<i>r</i>	.365	.191	.249
	<i>p</i>	.001**	.101	.032
Truth-seeking	<i>r</i>	-.070	-.066	-.033
	<i>p</i>	.550	.575	.777
Open-mindedness	<i>r</i>	.332	-.249	.436
	<i>p</i>	.004*	.031*	.000**
Analyticity	<i>r</i>	.130	.458	-.105
	<i>p</i>	.266	.000**	.370
Systematicity	<i>r</i>	.216	.062	.171
	<i>p</i>	.063	.597	.142
Self-confidence	<i>r</i>	.374	.189	.258
	<i>p</i>	.001**	.105	.026*
Inquisitiveness	<i>r</i>	.220	.369	.024
	<i>p</i>	.058	.001**	.837

Note. ** $p < .001$; * $p < .05$

When the results are examined together with dimensions of the scales, it was found statistically significant correlation between mean scores of teaching-learning conceptions and both open-mindedness ($r = .332$, $p < .05$) and self-confidence ($r = .374$, $p < .01$) sub-scales of critical thinking tendency. Again,

there is a statistically significant correlation between open-mindedness ($r = -.249$, $p < .05$), analyticity ($r = .458$, $p < .01$) with inquisitiveness ($r = .369$, $p < .01$) sub-scales of critical thinking tendency and constructivist conception of teaching-learning. When it is looked at traditional conception, there is a statistically significant correlation between open-mindedness ($r = .436$, $p < .01$) with self-confidence ($r = .285$, $p < .05$) and traditional conception as a sub-scale of teaching-learning conceptions. However, there is no statistically significant correlation between both truth-seeking and systematicity sub-scales and teaching-learning conceptions mean value and its sub-scales.

For the analysis of pre-service teachers' ideas on transformative teaching, two questions were asked: 1) What transformational teaching-learning for social change means to you? 2) Would you prefer to be a teacher interested in this type of conception? When asked what transformational teaching-learning means to them, they mostly associate it with change and development with critical thinking. For example, P23 indicates *"It means supporting and encouraging learners by leading them to think critically and reflectively in terms of social change"*. Another participant (P18) expresses *"I am not a satisfied individual from the society I live in, and to transform individuals to be more conscientious and humanistic, I can lead them to see both right and wrong, but I do not force them, I want to make their own decisions"*. From the other side, P19 describes as *"It is teaching-learning to prepare individuals for problems outside of the class, at the same time, positive changes are needed in the social field, because our behaviors are learned behavior"*. When asked whether they prefer to be a teacher interested in this type of teaching-learning concept, and how they implement it, they mostly gave positive answers and they expressed that this can be only possible with democratic classroom environment. For example, P15 pointed out that *"I would apply this kind of education by focusing on social issues and creating awareness for learners through discussions and multi-literacies"*. P63 also said *"Yes, I prefer to be that kind of teacher by creating discussion environments to make them learners who can think critically and question the issues"*. However, P13 indicates *"I am not sure, but I think changing and improving my attitudes is a starting point and it is really important both for my students and for all communities"*.

4. Discussion and Conclusion

Recently, the changes in society have brought changes in the field of education and these may lead teachers to gain different and additional roles both in education and social life. In a relevant literature, Bourn (2016), for instance, specifies these roles that teachers are nowadays not only change agents for individuals but also agents for social change inside and outside of the school. In this respect, it can be mentioned that they should educate their students as critical thinkers towards both themselves and others. From this perspective, this study aims to explain pre-service teachers' status by analyzing their critical thinking tendencies. Also, it analyzes their critical thinking tendencies in relation to their teaching-learning conceptions. Therefore, in this part of the study, the study's research questions and related findings will be discussed with relevant literature.

When pre-service teachers' critical thinking tendencies are taken into consideration, the results show that their level of critical thinking is on the level of moderate. In this sense, when it is considered that critical thinking tendencies of them may vary according to the instruction and practices in their fields, sampling of the study or different variables, it can be said that there are studies showing various results on this issue. In literature, there are studies showing similarities on critical thinking tendencies of pre-service teachers (Alper, 2010; Coşkun & Altınkurt, 2016; Durukan & Maden, 2010; Kuvacı & Koç, 2014; Maltepe, 2016; Uluçınar & Aypay, 2018; Yorgancı, 2016). Also, most studies indicate that pre-service teachers' level of critical thinking is low (Argon & Selvi, 2011; Bakır, 2014; Beşoluk & Önder, 2010; Cansoy & Türkoğlu, 2017; Çansoy, Parlar & Polatcan, 2018; Demirhan & Köklükaya, 2013). From these

studies it can be implied that critical thinking tendencies of pre-service teachers are at low or moderate level and this may be related to instructions and practices which assist them to think critically may not be provided or, if any, may not be sufficient.

Considering pre-service teachers' conceptions of teaching-learning results indicate that they are more inclined to the constructivist conception. Many studies also show similar results (e.g., Aypay, 2011; Bıkmaz, 2017; Bilgin & Aykaç, 2016; Chan, Tan & Khoo, 2007; Cheng, Chan, Thang & Cheng, 2009; Eren, 2009; Şahin, Deniz & Topçu, 2016; Uslu, 2016; Yalçın İncik, 2018) presenting pre-service teachers' predispositions in constructivist conception compared to traditional conception. According to Uztemur et al. (2020), the role of constructivist teaching-learning conceptions was a mediating variable in identifying the relationship between teachers' epistemological beliefs and learner autonomy support behaviors. This can be indicated in recent years, in educational systems, most of the instructions and curricula attempt to give emphasis on the constructivist views within individuals.

In accordance with the results of the 3rd research question, it can be said that there is significant correlation between pre-service teachers' critical thinking tendencies and their teaching-learning conceptions. However, it is not found in any study in the literature examining the relationship between these two variables, relevant literature includes studies associated with subjects on teaching-learning conceptions and critical thinking. For instance, Suleiman, Rahman and Dzulkifli (2008) examine the relationship between critical thinking dispositions of university students and their approaches with critical thinking skills, and again Beşoluk and Önder (2010) investigate pre-service teachers' learning approaches and styles with their critical thinking approaches.

To identify the relation between transformational teaching-learning conceptions and critical thinking, Brookfield (1987) describes critical thinking as a starting point of transformational teaching and emancipatory learning and he adds that through thinking, individuals can be aware of how situations impact both thoughts and actions and they should develop alternatives to existing knowledge or way of thinking (as cited in Thomas, 2009). Therefore, in order to analyze pre-service teachers' thinking tendencies in relation to their perceptions about transformational teaching, two questions were asked about it. According to the obtained answers, it can be mentioned that pre-service teachers relate transformational teaching-learning conception with consciousness, social development, conscientious and humanistic individuals, changing learned behaviors and higher order thinking skills. And accordingly, most of the pre-service teachers expressed that they prefer to be interested in transformational teaching. Considering the implementation, they suggest that it should create an open classroom environment for all ideas, lead students to think critically and encourage them to solve problems individually. Briefly, it can be concluded that preparing future teachers to think critically has an important value for future practices and accordingly it may give insights for further studies on this issue.

To summarize, in the light of findings, pre-service English language teachers' critical thinking is on the level of moderate and they are mostly inclined to the constructivist conception of teaching-learning. Additionally, overall results showed that the correlation between their critical thinking tendencies and teaching learning conceptions is significant. In this sense, critical thinking can be associated with the features of constructivist conception such as inquiry-based, problem-based teaching and cooperative learning (Topolovcan & Matijevic, 2017). However, critical thinking is also the feature of transformational teaching-learning conception in which critiquing assumptions, reviewing these assumptions and perspectives critically, and making and taking action are the essential steps (Remenyi, 2016).

In terms of sub-dimensions of critical thinking, while pre-service teachers' analyticity, inquisitiveness and self-confidence values are on the high level, their open-mindedness, truth-seeking and systematicity values are on the moderate level. This can be changed based on individual differences or faculty-based practices. In this respect, there is a need for further studies investigating sub-dimensions of critical thinking and individual differences with qualitative studies in depth. All in all, especially pre-service teachers' critical thinking tendencies and skills should be improved by supporting related practices, if any, with following essential steps. Therefore, especially pre-service teachers' critical thinking tendencies and skills should be improved by supporting related practices, if any, following essential models and steps. To do this, teacher educators should also be role models for them while improving critical thinking.

When teaching-learning concepts are considered, it can be mentioned as a limitation of the study that there is no appropriate instrumentation which analyzes teachers' or teacher candidates' inclination in transformational teaching. Therefore, this study may lead researchers to develop a scale for analyzing transformational teaching-learning conception. However, in this study, with the help of open-ended questions, through which limited qualitative data are obtained, conclusions can be drawn. One of them is that pre-service teachers mostly associate transformational teaching-learning with social change and development, conscious individuals and democratic values. From this point, it can be concluded that pre-service teachers are partly knowledgeable about this issue, yet it is needed to transmit this conception to them in a comprehensive way and it should be emphasized the connection between this conception and critical thinking. As a second conclusion, with the given answers to the second question which is about implementation of the concept, pre-service teachers agreed on that it should be firstly created free classroom environment where students can feel free to express their ideas, and lastly, it can be arranged classroom activities to make students think reflectively and critically. From all these, it should be said that in this changing world, there is a need for more critical thinkers who can construct and express their own values and thoughts; hence, firstly teacher educators and then pre-service teachers should be informed and improved on this issue and studies under this hood should be increased.

5. Limitations of the Study

This mixed method study conducted through two different questionnaires and open-ended question sections aims to analyze the relationship between pre-service teachers' critical thinking tendencies and their teaching-learning conceptions. Though the data is gathered through multiple sources such as questionnaires and open-ended questions, the present study has some methodological limitations. Firstly, in order to analyze pre-service teachers' perceptions about transformational teaching and learning, self-adapted open-ended questions were added to the teaching-learning conceptions questionnaire. This issue may be a limitation since it can affect the reliability of the study. Secondly, as the researcher was not able to observe the pre-service teachers' critical thinking practices during teacher training because of the limited time, the qualitative data collection was limited with two open-ended questions. Thirdly, the researcher had to trust participants' self-reported answers to open-ended questions regarding transformational teaching-learning conceptions. Finally, as a theoretical limitation, due to the limited number of studies on transformational teaching and learning as a recent concept in the context of Turkey, the researcher worked with limited resources on this concept.

References

- Alper, A. (2010). Critical thinking disposition of pre-service teachers. *Eğitim ve Bilim*, 35(158), 14-27.
- Argon, T., & Selvi, Ç. (2011). Öğretmen adaylarının eleştirel düşünme eğilimleri ve çatışma yönetimi stilleri. *Journal of Educational and Instructional Studies in the World*, 1(1), 93-100.

- Aypay, A. (2011). Epistemolojik inançlar ölçeğinin Türkiye uyarlaması ve öğretmen adaylarının epistemolojik inançlarının incelenmesi. *Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi*, 12(1).
- Aypay, A. (2011). The adaptation of the teaching-learning conceptions questionnaire and its relationships with epistemological beliefs. *Educational Sciences: Theory and practice*, 11(1), 21-29.
- Bakir, S. (2015). Critical thinking dispositions of pre-service teachers. *Educational Research and Reviews*, 10(2), 225-233.
- Beşoluk, Ş., & Önder, İ. (2010). Investigation of teacher candidates' learning approaches, learning styles and critical thinking dispositions. *Elementary Education Online*, 9(2), 679-693.
- Bıkmaz, F. (2017). Investigating the teaching and learning conceptions and scientific epistemological beliefs of pre-service teachers: A longitudinal study. *Eğitim ve Bilim*, 42(189), 183-196.
- Bilgin, H., & Aykaç, N. (2016). Pre-service teachers' teaching-learning conceptions and their attitudes towards teaching profession. *Educational Process: International Journal*, 5(2), 139-151.
- Brooks, M. G., & Brooks, J. G. (1999). The courage to be constructivist. *Educational Leadership*, 57(3), 18-24.
- Cansoy, R., & Türkoğlu, M. E. (2017). Examining the relationship between pre-service teachers' critical thinking disposition, problem solving skills and teacher self-efficacy. *International Education Studies*, 10(6), 23-35.
- Cansoy, R., Polatcan, M., & Parlar, H. (2018). Research on teacher self-efficacy in Turkey: 2000-2017. *World Journal of Education*, 8(4), 133-145.
- Chan, K. W., & Elliott, R. G. (2004). Relational analysis of personal epistemology and conceptions about teaching and learning. *Teaching and Teacher Education*, 20, 817-831.
- Chan, K. W., Tan, J., & Khoo, A. (2007). Pre-service teachers' conceptions about teaching and learning: A closer look at Singapore cultural context. *Asia-Pacific Journal of Teacher Education*, 35(2), 181-195.
- Chen, M. (2019). The impact of pre-service teachers' dispositional mindfulness on their critical thinking dispositions. Paper presented at Honours Project, The Education University of Hong Kong.
- Coşkun, M. V., & Altınkurt, Y. (2016). The relationship between values and critical thinking dispositions of pre-service teachers. *Educational Process: International Journal*, 5(4), 298-312.
- Cottrell, S. (2005). *Critical thinking- developing effective analysis and argument*. New York: Palgrave Macmillan.
- Demiral, U. (2018). Examination of critical thinking skills of pre-service science teachers: A perspective of social constructivist theory. *Journal of Education and Learning*, 7(4), 179-190.
- Demirhan, E., & Köklükaya, A. N. (2014). The critical thinking dispositions of prospective science teachers. *Procedia-Social and Behavioral Sciences*, 116, 1551-1555.
- Durukan, E., & Maden, S. (2010). Türkçe öğretmeni adaylarının eleştirel düşünme eğilimleri üzerine bir araştırma. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, 28, 25-53.
- Epstein, R. L. (2006). *Critical thinking*. Canada: Thomson Wadsworth.
- Eren, A. (2009). Examining the teacher efficacy and achievement goals as predictors of Turkish student teachers' conceptions about teaching and learning. *Australian Journal of Teacher Education*, 34(1).
- Facione, P. A., Facione, N.C., & Giancarlo, C. A. F. (1998). *The California critical thinking disposition inventory*. California: Academic Press.
- Freire, P. (2018). *Pedagogy of the oppressed*. Bloomsbury Publishing USA.
- Giroux, H. A. (1997). *Pedagogy and the politics of hope: Theory, culture and schooling: A critical reader*. Routledge.
- Goodfellow, J., & Sumsion, J. (2000). Transformative pathways: Field-based teacher educators' perceptions. *Journal of Education for Teaching: International Research and Pedagogy*, 26(3), 245-257.
- Johnson-Bailey, J., & Alfred, M. V. (2006). Transformational teaching and the practices of black women adult educators. *New Directions for Adult and Continuing Education*, 2006(109), 49-58.
- Kaye, C., & Ragusa, G. (1998). Boal's Mirror: Reflections for teacher education. *Institute of Education Sciences*. ERIC.
- Kökdemir, D. (2003). *Belirsizlik durumlarında karar verme ve problem çözme* [Doktora tezi]. Ankara Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

- Kong, S. L. (2001). *Critical thinking dispositions of pre-service teachers in Singapore: A preliminary investigation*. Paper presented at the AARE Conference, Fremantle, Australia.
- Kunkel-Pottebaum, H. E. (2013). Mission possible: Teachers serving as agents of social change. *Education Doctoral Dissertations in Leadership*, 38.
- Kuvaç, M., & Koc, I. (2014). Fen bilgisi öğretmen adaylarının eleştirel düşünme eğilimleri: İstanbul Üniversitesi örneği. *Turkish Journal of Education*, 3(2), 46-59.
- Loacker, G. (1984). *Analysis and communication at Alverno: An approach to critical thinking*. Alverno College.
- Maltepe, S. (2016). Critical thinking dispositions of pre-service Turkish language teachers and primary teachers. *Journal of Education and Training Studies*, 4(6), 44-50.
- Özmen, K. S. (2006). A case study on critical thinking abilities of teacher trainees at Gazi university English language teaching department (*Unpublished master's thesis*). Gazi University, Ankara, Turkey.
- Palavan, Ö. (2020). The effect of critical thinking education on the critical thinking skills and the critical thinking dispositions of pre-service teachers. *Educational Research and Reviews*, 15(10), 606-627.
- Paul, R. & Elder, L. (2005). *Critical thinking competency standards*. Tomales, CA: Foundation for Critical Thinking.
- Peters, J., Le Cornu, R. & Collins, J. (2003). Constructing relationships for learning. Paper presented at the New Zealand Association for Research in Education and the Australian Association for Research in Education Joint Conference, Auckland.
- Reményi, J. V. (2016). Steps in need of teachers' transformative professional learning. *Opus et Educatio*, 3(6).
- Rosebrough, T. R., & Leverett, R. G. (2011). *Transformational teaching in the information age: Making why and how we teach relevant to students*. ASCD.
- Sahin, E. A., Deniz, H., & Topçu, M. S. (2016). Predicting Turkish pre-service elementary teachers' orientations to teaching science with epistemological beliefs, learning conceptions, and learning approaches in science. *International Journal of Environmental and Science Education*, 11(5), 515-534.
- Şahin, S. A., Tunca, N., Altinkurt, Y., & Yılmaz, K. (2016). Relationship between professional values and critical thinking disposition of science-technology and mathematics teachers. *Eurasia Journal of Mathematics, Science & Technology Education*, 12(1), 25-40.
- Shor, I. (1992). *Empowering education: Critical teaching for social change*. Chicago: The University of Chicago Press.
- Slavich, G. M. (2005). Transformational teaching. *Essays from e-xcellence in teaching*, 5.
- Slavich, G. M., & Zimbardo, P. G. (2012). Transformational teaching: Theoretical underpinnings, basic principles, and core methods. *Educational Psychology Review*, 24(4), 569-608.
- Sulaiman, W. S. W., Rahman, W. R. A., & Dzulkifli, M. A. (2008). Relationship between critical thinking dispositions, perceptions towards teachers, learning approaches and critical thinking skills among university students. *International Journal of Behavioral Science*, 3(1), 122-133.
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.), Boston: Allyn and Bacon.
- Thorburn, M. (Ed.). (2017). *Transformative learning and teaching in Physical education*. Taylor & Francis.
- Topolovcan, T., & Matijevic, M. (2017). Critical thinking as a dimension of constructivist learning: some of the characteristics of students of lower secondary education in Croatia. *Center for Educational Policy Studies Journal*, 7(3), 47-66.
- Turan, M. B., & Koç, K. (2019). The analysis of the relationship between teaching/learning conceptions and reflective thinking in physical education teacher candidates. *International Educational Studies*, 12(3), 116-123.
- Ulu, H. (2019). Examining the relationships between the attitudes towards reading and reading habits, metacognitive awareness of reading strategies, and critical thinking tendencies of pre-service teachers. *International Journal of Contemporary Educational Research*, 6(1), 169-182. DOI: <https://doi.org/10.33200/ijcer.549319>

- Uluçınar, U., & Aypay, A. (2018). An evaluation of the relationship between pre-service teachers' critical thinking dispositions and democratic values in terms of critical pedagogy. *Journal of History Culture and Art Research*, 7(3), 1-17. DOI: <http://dx.doi.org/10.7596/taksad.v7i3.1545>
- Uslu, Ö. (2016) Examining teaching-learning conceptions of preservice teachers based on different variables. *International Conference on Quality in Higher Education*, 24-25 November, Sakarya, Turkey.
- Uztemur, S., Dinç, E., & İnel, Y. (2020). The relationships between middle school teachers' epistemological beliefs and learner autonomy support behaviors: The role of teaching-learning conceptions as the mediating variable. *Education and Science*, 45(202), 221-239
- Williams, R. L. (2005). Targeting critical thinking within teacher education: The potential impact on society. *The Teacher Educator*, 40(3), 163-187.
- Yalçın İncik, E. (2018). The Relationship between teachers' educational beliefs and teaching-learning conceptions: A mixed method study. *Journal of Education and Future*, (14), 149-167. DOI: <http://doi.org/10.30786/jef.414487>
- Yorgancı, S. (2016). Critical thinking dispositions of pre-service mathematics teachers. *Participatory Educational Research*, 3(3), 36-46.

Note on Ethical Issues

The author confirms that ethical approval was obtained from Çanakkale Onsekiz Mart University Institute of Educational Sciences (Approval Date: 17 /12 /2018).