

Analysis on the Effect of the Thinking Styles of Prospective Social Studies and Classroom Teachers on Their Attitudes towards Learning in Terms of Different Variables

Ayşegül Çelikⁱ

Yozgat Bozok University

Abstract

The purpose of this study is to determine whether there is a relationship between the thinking styles of prospective teachers and their attitudes towards learning. Relational screening model was used in this research analyzing the relationship between the thinking styles of prospective social studies and classroom teachers and their attitude towards learning. The research sample is composed of 191 prospective social studies and classroom teachers studying in a state university located in Central Anatolia Region for academic year. Rational-Experiential Thinking Styles Questionnaire and The Scale of Attitudes towards Learning chosen as purpose-oriented were used in the study. Unrelated samples t test, one-way analysis of variance and pearson correlation analysis were performed in the data analysis. A negatively significant relation was ascertained between the cognitive requirement sub-dimension of the thinking styles questionnaire of prospective teachers and the sub-dimensions of the nature of learning, expectations about learning and openness to learning belonging to the scale of attitudes towards learning. There was no significant relation observed between the intuitive belief sub-dimension of the thinking styles questionnaire and the sub-dimensions of the nature of learning, expectations about learning, openness to learning and concern about learning belonging to the scale of attitudes towards learning.

Keywords: Attitudes towards learning, Prospective teachers, Thinking styles.

DOI: 10.29329/ijpe.2019.212.7

ⁱ **Ayşegül Çelik**, Assist. Prof. Dr., Social Studies Education, Yozgat Bozok University

Correspondence: aysegulll_clk@hotmail.com

INTRODUCTION

Undoubtedly, education takes its share from this transformation in a changing and developing world. Although innovations and technology provide simplicity for human life, they bring many problems. Individuals must possess some thinking skills in seeking solutions for the problems of daily life. These thinking skills are implanted in education environment. Creating the appropriate learning environments may have an effect on both the thinking skills and the attitudes of students towards learning. Positive or negative attitudes of students towards learning not only become effective in bringing in the desired behaviors, but also can ensure formation of positive class climate and strengthened in-class communication.

Thinking Styles

Thinking has a considerably complex structure and stands as a skill that can be learned, practiced and developed (Çubukçu, 2004; Dinçer, Saracaloğlu, 2011). Many mental processes such as analysis, synthesis and evaluation are included in the action of thinking (Baloğlu, Yüksel, Karadağ, 2010). The differences of individuals reflect on their thoughts and thinking styles (Demir, Erginsoy Osmanoğlu, 2013; Güven, Azkeskin, 2018; Oflar, Yıldız, 2016; Yaşar, Erol, 2015). In other words, thinking style can be defined as the combination of personality traits that create the human (Belousava, 2014). Likewise, personal and environmental factors are also effective in individual's self-formation (Cheng, Sin, 2019). These differences lead to different styles (Çelik, Kumral, 2016). Sternberg (1997) has expressed that styles are the ways of people's using their skills (as cited in Zhang, 2004). Thinking style denotes the mental processes applied by individuals to any situation they come across (Başol, Türkoğlu, 2009; İnci, Erten, Çitil, 2012). This process plays an important role in the emergence of the talents of individuals (Çoşkuner, Gacar, Yanlıç, 2012). According to Epstein et al. (1992), people use analytical-rational thinking style and intuitional-experiential thinking style (as cited in Buluş, 2003). Thinking style plays an important role in the education process as well as being effective in the daily life of the individual (Özbaş, Uluçınar Sağır, 2014). Every educator has their own thinking style and this thinking style can apply a direct effect on the student (Kavgaoğlu, Altun, 2016). Since, it is necessary to understand the thinking styles of students in order to discover their learning (Akkuş İspir, Ay, Saygı, 2011). Teachers should not be content with transferring certain information to students. They should also upskill the students with such skills as creative thinking, critical thinking and problem solving (Eryaman, 2007; Duman, Çelik, 2011). The teacher must take into account the individual differences of students after creating the appropriate learning environment. These individual differences also cause differentiations in the behaviors of students directed to learning (Kızılaslan Tunçer, Kıncal, Şahin, 2015). Students have their own unique ways of thinking like every individual in the society (Başol, Türkoğlu, 2009). Only learning environments, materials, teaching methods and techniques are not sufficient alone in order to bring the student in a skill, value or a desired behavior. Changes in educational programs lead to the diversification of qualifications the teachers must possess (Eryaman & Riedler, 2010; Esmer, Altun, 2015). An effective education-training environment can only be created this way. Teachers should keep pace with the necessities of the time so that an individual complying with the requirements of this era can arise. Thinking styles of teachers reflect on their teaching styles (Zhang, 2005). There should be an interactive relation between the thinking styles of teachers and students (Betoret, Artiga, 2014). Teachers can encourage the interpersonal behaviors valued by students in class and this can enable them to apply the thinking styles used in realization of learning (Yu, Chen, 2012).

Attitude Towards Learning

Many factors can be effective in learning. In order for learning to realize, not only the teacher but also the student must actively participate in this learning process (Tay, 2005). Another important factor related to learning is the attitudes of individuals towards learning. The individuals with different characteristics use different methods and strategies during the learning process (Sapanıcı, 2014). The attitude towards learning can be defined as the tendencies of individuals towards learning (Komşu,

Samırkaş Komşu, Boz, 2018). Cognitive structure of the individual, purpose and other factors can be effective in the development of attitude towards learning (Altunsoy, Çimen, Gökmen, Ekici, 2011). The students must have positive feelings and thoughts directed to learning in their attitudes towards learning, finding a solution to the problems encountered in daily life or for self-development (Komşu, Samırkaş Komşu, Boz, 2018). In a developing and changing society, individuals must be provided with not only transfer of knowledge, but also the ability to search for information (Kuo, Hwang, Lee, 2012). Positive attitudes should be provided in order to bring individuals in these skills, values and talents. Thus, individuals can adopt to new situations and find solutions to the problems (Kara, 2010). On the other hand, the attitudes of teachers being the important constituent of teaching process towards learning reflect on class climate (Kara, Uysal, p.37, 2015). The attitudes and behaviors of teacher in education environment may affect student gain and success (Sönmez, 2010, p.143). Taking into account all of these, the attitudes of teachers towards learning in learning environment should be reflected in a way to affect students positively.

Looking at literature and the studies conducted on thinking styles, there are researches found directed to prospective teachers (Başol, Türkoğlu, 2009; Buluş, 2016; Çubukçu, 2004; Dinçer, Saracaloğlu, 2011; Esmer, Altun, 2016; Güven, Kürüm, 2008; İnci, Erten, Çitil, 2012; Sökmen, Kılıç, 2016; Yaşar, Erol, 2015; Yıldızlar, 2010) while there are also researches directed to teachers (Baloğlu, Yüksel, Karadağ, 2010; Duman, Çelik, 2011; Güven, Azkeskin, 2018; Kavgaoğlu, Altun, 2016; Oflar, Yıldız, 2016; Özbaş, Uluçınar Sağır, 2014). Other studies conducted on students are also observed (Çelik, Kumral, 2016; Siyer, Tarım, 2016). There are researches in the literature discussing prospective teachers and teachers in attitudes towards learning (Çağlar, 2017; Sapanıcı, 2014).

The purpose of this study is to determine whether there is a relationship between the thinking styles of prospective Social studies and Classroom teachers and their attitudes towards learning. In this regard, thinking styles of prospective teachers and their attitudes towards learning were also analyzed in terms of gender, the department studied and grades.

MATERIAL AND METHODS

The research model, population and sample, data collection tools, data analysis and data collection are discussed in this part.

The Research Model

Relational screening model was used in this research analyzing the relationship between the thinking styles of prospective social studies and classroom teachers and their attitude towards learning. The relational research aims to establish the relations and types between variables (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, Demirel, 2017; Sönmez, Alacapınar, 2017). The relational research ensures knowing different situations through a variable basically (Karasar, 2006).

Population and Sample

The research sample is composed of 191 prospective Social Studies and Classroom teachers studying in a state university located in Central Anatolia Region for 2018-2019 academic year. Random sampling among the sampling methods based on probability was used in the study. In random sampling, each sampling unit has equal chances during the research process and the preference of individuals does not affect each other (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, Demirel, 2017; Ekiz, 2015). The demographic characteristics of prospective teachers are given in table 1.

Table 1. Demographic characteristics of prospective teachers

Gender	f
Female	133
Male	58
Total	191

Data Collection Tools

The Personal Information Form, Rational-Experiential Thinking Styles Questionnaire and The Scale of Attitudes towards Learning chosen as purpose-oriented were used in the study. Required permissions were taken for the use of scales in the research (Buluş, 2003; Kara, 2010). Personal information form includes demographic characteristics of prospective teachers such as age, gender, grade and the department studied.

Rational-Experiential Thinking Styles Questionnaire was developed by Epstein et al. (1996). Its Turkish adaptation was performed by Buluş (2003). Rational-Experiential Thinking Styles Questionnaire used in the research and adopted into Turkish culture by Buluş (2003) is composed of 29 items and 2 sub-dimensions of cognitive requirement and intuitive belief. The scale consists of 5-point Likert-type rating scale. The answers are given as completely wrong, partially wrong, neutral, partly true and completely true. In the analyses conducted for test re-test reliability of the Rational-Experiential Thinking Styles Questionnaire, Pearson Correlation Coefficient was found as $r: .85$ for cognitive requirement and $r: .86$ for intuitive belief.

The Scale of Attitudes towards Learning was developed by Kara (2010). The scale is composed of 40 items and four sub-dimensions namely the nature of learning, expectations about learning, openness to learning and concerns about learning. The scale consists of 5-point Likert-type rating scale. Cronbach Alpha value of the sub-dimension of the nature of learning was found $.77$, Cronbach Alpha value of the sub-dimension of expectations about learning was found as $.72$, Cronbach Alpha value of the sub-dimension of openness to learning was found as $.78$ and Cronbach Alpha value of the sub-dimension of concerns about learning was found as $.81$. Cronbach Alpha value of the whole scale was determined as $.73$.

Data Analysis

In the analysis part of this research analyzing the effect of the thinking styles of prospective Social studies and Classroom teachers on their attitudes towards learning through different variables, SPSS package program was used. Unrelated samples t test, one-way analysis of variance (Anova) and Pearson correlation analysis were performed in the data analysis.

Data Collection

Required permissions were taken for the use of scales in the research (Buluş, 2003; Kara, 2010). The data collection process was carried out by the researcher on different days and hours academic year. The application of scales lasted for 20 minutes approximately. A total of 70 scales considered to be missing and invalid were excluded from the analysis period after the application.

FINDINGS

In this part of the study, there are findings relevant to t-test, one-way analysis of variance (Anova) and Pearson correlation analysis.

Table 2. Independent groups t-test results of the scores of prospective teachers obtained from the thinking styles questionnaire by gender

Scale Sub-dimension	Gender	N	\bar{x}	S	sd	t	p
Cognitive Requirement	Female	133	2.65	.673	189	.437	.663
	Male	58	2.61	.690			
Intuitive Belief	Female	133	3.39	.852	189	.937	.350
	Male	58	3.25	.936			

Looking at table 2, mean cognitive requirement score of the female prospective teachers was found as \bar{x} : 2.65 while it was found as \bar{x} : 2.61 for male prospective teachers in the analysis performed to determine the level of thinking styles of prospective teachers. In the intuitive belief sub-dimension of the scale, mean score of the female prospective teachers was determined as \bar{x} : 3.39 while this score was established as \bar{x} : 3.25 for male prospective teachers. No significant difference has been found between the groups following the analysis conducted to determine whether thinking styles exhibit statistically significant difference by the gender factor.

Table 3. Independent groups t-test results of the scores of prospective teachers obtained from the scale of attitudes towards learning by gender

Scale Sub-dimension	Gender	N	\bar{x}	S	sd	t	p
Nature of Learning	Female	133	2.10	.512	189	.860	.391
	Male	58	2.17	.561			
Expectations About Learning	Female	133	2.87	.523	189	.849	.397
	Male	58	2.80	.512			
Openness to Learning	Female	133	2.33	.498	189	.579	.564
	Male	58	2.37	.487			
Concerns about Learning	Female	133	2.12	.527	189	.243	.808
	Male	58	2.14	.446			

In table 3, mean score of the nature of learning belonging to female prospective teachers was found as \bar{x} : 2.10 while it was found as \bar{x} : 2.17 for male prospective teachers in the analysis performed to determine the attitude levels of prospective teachers towards learning. In the scale's sub-dimension of expectations about learning, mean score of female prospective teachers was found as \bar{x} : 2.87 while the same score was determined as \bar{x} : 2.80 in male prospective teachers. In the sub-dimension of openness to learning, mean score of female prospective teachers was found as \bar{x} : 2.33 while the mean score of male prospective teachers was determined as \bar{x} : 2.37. In the sub-dimension of concern about learning, mean score of female prospective teachers was found as \bar{x} : 2.12 while the mean score of male prospective teachers was determined as \bar{x} : 2.14. No significant difference has been found between the groups following the analysis conducted to determine whether the attitudes of prospective teachers towards learning exhibit statistically significant difference by the gender factor.

Table 4. One-way Anova results of the scores of prospective teachers obtained from the thinking styles questionnaire by the department studied

Scale Sub-dimension	Department	\bar{x}	Source of Variance	Sum of Squares	sd	Mean Squares	F	p
Cognitive Requirement	Social Studies	2.64	Between groups	.004	1	.004	.009	.924
	Classroom Instruction Education	2.63	Intra-groups	87.228	189	.462		
Intuitive Belief	Social Studies	3.32	Between groups	.093	1	.093	.120	.729
	Classroom Instruction Education	3.37	Intra-groups	146.412	189	.775		

Looking at table 4, regarding the cognitive requirement sub-dimension of the thinking styles questionnaire of prospective teachers, mean score of social studies education was found as \bar{x} : 2.64 while the mean score of classroom education was found as \bar{x} : 2.63. For the intuitive belief sub-dimension of the scale, mean score of social studies education was found as \bar{x} : 3.32 while the mean score of classroom education was found as \bar{x} : 3.37. No significant difference was found when it was analyzed whether there was a significant difference between the department of prospective teachers and their thinking styles.

Table 5. One-way Anova results of the scores of prospective teachers obtained from the scale of attitudes towards learning by the department studied

Scale Sub-dimension	Department	\bar{x}	Source of Variance	Sum of Squares	sd	Mean Squares	F	p
Nature of Learning	Social Studies	2.00	Between groups	1.923	1	1.923	7.133	.008
	Classroom Instruction Education	2.20	Intra-groups	50.958	189	.270		
Expectations About Learning	Social Studies	2.83	Between groups	.032	1	.032	.120	.730
	Classroom Instruction Education	2.86	Intra-groups	51.287	189	.271		
Openness to Learning	Social Studies	2.46	Between groups	1.489	1	1.489	6.269	.013
	Classroom Instruction Education	2.42	Intra-groups	44.902	189	.238		
Concerns about Learning	Social Studies	2.04	Between groups	.891	1	.891	3.572	.060
	Classroom Instruction Education	2.18	Intra-groups	47.157	189	.250		

In table 5, regarding the nature of learning sub-dimension of the scale of attitudes of prospective teachers towards learning, mean score of social studies education was found as \bar{x} : 2.00 while the mean score of classroom education was found as \bar{x} : 2.20. For the sub-dimension of expectations about learning, mean score of social studies education was found as \bar{x} : 2.83 while the mean score of classroom education was found as \bar{x} : 2.86. In the sub-dimension of openness to learning, mean score of social studies education was found as \bar{x} : 2.46 while the mean score of classroom education was found as \bar{x} : 2.42. In the sub-dimension of concerns about learning, mean score of social studies education was found as \bar{x} : 2.04 while the mean score of classroom education was found as \bar{x} : 2.18. No significant difference was found when it was analyzed whether there was a significant difference between the department of prospective teachers and their attitudes towards learning.

Table 6. One-way Anova results of the scores of prospective teachers obtained from the thinking styles questionnaire by the grade

Scale Sub-dimension	Grade	\bar{x}	Source of Variance	Sum of Squares	sd	Mean Squares	F	p
Cognitive Requirement	1	2.50	Between groups	2.050	3	.683	1.500	.216
	2	2.66	Intra-groups	85.183	187	.456		
	3	2.77						
	4	2.61						
Intuitive Belief	1	3.39	Between groups	1.286	3	.429	.552	.648
	2	3.43	Intra-groups	145.220	187	.777		
	3	3.31						
	4	3.18						

Looking at table 6, mean score of the prospective teachers for the first grade in cognitive requirement sub-dimension of the thinking styles questionnaire was found as \bar{x} : 2.50 while the mean score of the second grade as \bar{x} : 2.66, the mean score of the third grade was found as \bar{x} : 2.77 and the mean score of the fourth grade was found as \bar{x} : 2.61. In the intuitive belief sub-dimension of the scale, the mean score of the first grade was found as \bar{x} : 3.39, the mean score of the second grade was found as \bar{x} : 3.43, the mean score of the third grade was found as \bar{x} : 3.31 and the mean score of the fourth grade was found as \bar{x} : 3.18. No significant difference was found when it was analyzed whether there was a significant difference between the department of prospective teachers and their thinking styles.

Table 7. One-way Anova results of the scores of prospective teachers obtained from the scale of attitudes towards learning by the grade

Scale Sub-dimension	Grade	\bar{x}	Source of Variance	Sum of Squares	sd	Mean Squares	F	p	Sign. Difference
Nature of learning	1	2.14	Between groups	3.487	3	1.162	4.401	.005	3-4
	2	2.11	Intra-groups	49.394	187	.264			
	3	1.96							
	4	2.39							
Expectations about learning	1	2.98	Between groups	5.283	3	1.761	7.153	.000	1-3
	2	2.92	Intra-groups	46.037	187	.246			
	3	2.58							
	4	2.96							
Openness to learning	1	2.52	Between groups	7.441	3	2.480	11.909	.000	1-3
	2	2.33	Intra-groups	38.950	187	.208			3-4
	3	2.06							
	4	2.56							
Concerns about learning	1	2.12	Between groups	1.406	3	.469	1.879	.135	
	2	2.15	Intra-groups	46.643	187	.249			
	3	2.01							
	4	2.28							

In table 7, mean score of the prospective teachers for the first grade in the nature of learning sub-dimension of the scale of attitudes towards learning was found as \bar{x} : 2.14 while the mean score of the second grade as \bar{x} : 2.11, the mean score of the third grade was found as \bar{x} : 1.96 and the mean score of the fourth grade was found as \bar{x} : 2.39. In the sub-dimension of expectations about learning, the mean score of the first grade was determined as \bar{x} : 2.98, the mean score of the second grade as \bar{x} : 2.92, the mean score of the third grade as \bar{x} : 2.58 and the mean score of the fourth grade was found as \bar{x} : 2.96. In the sub-dimension of the openness to learning, the mean score of the first grade was determined as \bar{x} : 2.52, the mean score of the second grade as \bar{x} : 2.33, the mean score of the third grade as \bar{x} : 2.06 and the mean score of the fourth grade was found as \bar{x} : 2.56. In the sub-dimension of concerns about learning, the mean score of the first grade was determined as \bar{x} : 2.12, the mean score of the second grade as \bar{x} : 2.15, the mean score of the third grade as \bar{x} : 2.01 and the mean score of the fourth grade was found as \bar{x} : 2.28. When it was analyzed whether there was a difference between the grades of prospective teachers and their attitudes towards learning, it was established that the significant differences were observed between the third grade and the fourth grade in the sub-dimension of the nature of learning, between the first grade and the third grade in the sub-dimension of the expectations about learning and between the first grade and the third grade as well as between the third grade and the fourth grade in the sub-dimension of openness to learning.

Table 8. Correlation between the Thinking Styles of Prospective Teachers and Their Attitude towards Learning

Thinking Styles		Attitude Towards Learning			
		The Nature of Learning	Expectations about Learning	Openness to Learning	Concerns about Learning
Cognitive Requirement	r	-.224	-.169	-.260	-.048
	p	.002	.019	.000	.508
	n	191	191	191	191
Intuitive Belief	r	-.022	.102	-.042	-.129
	p	.759	.159	.561	.076
	n	191	191	191	191

In table 8, a negatively significant relation was ascertained between the cognitive requirement sub-dimension of the thinking styles questionnaire and the sub-dimensions of the nature of learning ($r=-.224$), expectations about learning ($r=-.169$) and openness to learning ($r=-.260$) belonging to the scale of attitudes towards learning. However, it was determined that no significant relation existed between the cognitive requirement and the concern about learning ($r=-.048$). It was also established that there was no significant relation between the intuitive belief sub-dimension of the thinking styles questionnaire and the sub-dimensions of the nature of learning, expectations about learning, openness to learning and concern about learning belonging to the scale of attitudes towards learning.

DISCUSSION AND CONCLUSION

No significant difference was found when analyzing the effect of thinking styles questionnaire of prospective social studies and classroom teachers on gender. This result complies with (Çubukçu. 2004; Fırat Durdukoca 2011; Yaşar Erol. 2015) while conflicts with (Dinçer. Saracaoğlu. 2011). Investigating the effect of the scale of attitudes of prospective teachers towards learning on gender, no significant difference was found. According to these findings of the research, there isn't any relationship between the attitudes and thinking styles directed to learning and gender of prospective teachers. No significant relation was found when it was analyzed whether there was a significant difference between the department of prospective teachers and their thinking styles. This indicates that there is no relationship between the thinking styles of prospective teachers and their department studied. No significant difference was found in the relationship between the attitudes of prospective teachers towards learning the department they studied. No significant difference was found when it was analyzed whether there was a significant difference between thinking styles by the grade levels. When it was analyzed whether there was a difference between the grades of prospective teachers and their attitudes towards learning, it was established that the significant differences were observed between the third grade and the fourth grade in the sub-dimension of the nature of learning, between the first grade and the third grade in the sub-dimension of the expectations about learning and between the first grade and the third grade as well as between the third grade and the fourth grade in the sub-dimension of openness to learning. With reference to this finding, it is possible to state a relationship between the grades of prospective teachers and their attitudes towards learning. A negatively significant relation was ascertained between the cognitive requirement sub-dimension of the thinking styles questionnaire of prospective teachers and the sub-dimensions of the nature of learning, expectations about learning and openness to learning belonging to the scale of attitudes towards learning. This condition denotes that learning is based on thinking (Güven. Azkeskin. 2018). No significant relation was found between cognitive requirement and concerns about learning. There was no significant relation observed between the intuitive belief sub-dimension of the thinking styles questionnaire and the sub-dimensions of the nature of learning, expectations about learning, openness to learning and concern about learning belonging to the scale of attitudes towards learning.

Thinking styles play an important role in the realization of learning for individuals. The teachers having an effective role in learning process must create their own thinking styles and design

the education and training process, accordingly. Different teaching styles of teachers stem from the fact that they have different thinking styles (Kavgaoğlu, Altun, 2016). In this regard, teachers must design the teaching process by considering the fact that each individual has different thinking style. Not only thinking styles, but also the attitudes towards learning are special to individuals. In designing the education and training process, teachers must consider that every student has different thinking styles for some desired behaviors brought through cognitive, affective and psychomotor skills and this can affect their attitudes towards learning.

REFERENCES

- Akkuş İspir, O., Ay, S. Z. & Saygı, E. (2011). High achiever students' self regulated learning strategies, motivation towards mathematics, and their thinking styles. *Education and Science*, 36(162), 235-245.
- Altunsoy, S., Çimen, O., Gökmen, A. & Ekici, G.,(2011). An analysis of candidate teachers' attitudes towards learning. *Procedia Social and Behavioral Sciences*, 15, 2564–2568.
- Baloğlu, N., Yüksel, S. & Karadağ, E.(2010). Primary school teachers' constructive thinking styles and life conflict. *Journal of Theoretical Educational Science*, 3 (2), 83-99.
- Başol, G. & Türkoğlu, E. (2009). The relationship between the locus of control and thinking styles of teacher candidates. *Journal of Human Science*, 6(1), 732-757.
- Belousova, A. ,(2014). Thinking style as a factor of variable cognitive education. *Procedia - Social and Behavioral Sciences*,149, 97-101.
- Betoret, D. F. & Artiga, G. A. (2014). The relationship among students' and teachers' thinking styles, psychological needs and motivation. *Learning and Individual Differences*, 29, 89–97.
- Buluş, M., (2003). Reliability and validity of rational-experiential thinking styles inventory. *Ege Journal of Education*, 3(1), 133-138.
- Buluş, M., (2016). Predictive analysis among thinking styles, goal orientations and academic achievement of student teachers. *Journal of Higher Education*, 6 (2), 62-71.
- Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş.& Demirel, F. (2017). *Scientific research methods*. Ankara: Pegem Academy.
- Cheng, S. & Sin, F. K.(2019). Thinking styles and self-determination among university students who are deaf or hard of hearing and hearing university students. *Research in Developmental Disabilities*,85, 61–69.
- Çağlar, S., (2017). *Determination of computer teachers' efficacy perceptions and attitudes towards lifelong learning*. (Masters' Thesis), Near East University , KKTC.
- Çelik, D.& Kumral, O. (2016). Thinking styles of grade 11th students, learning strategies and the relationship between learning strategies and thinking. *Mersin University Journal of the Faculty of Education*. 12(2), 719-733.
- Çoşkuner, Z., Gacar, A. & Yanlıç, N. (2012). Evaluation of thinking styles of prospective physical education and sport teachers. *Journal of Sports and Performance Researches*. 3(1), 25-32.
- Çubukçu, Z. (2004). Determine the thinking styles of teacher candidates. *Trakya University Journal of Social Science*. 6(2), 87-105.

- Demir, Ö. & Erginsoy Osmanoğlu, D.(2013). An investigation of high school students' thinking styles in terms of various variables. *Journal of Educational Sciences Research*. 3(1), 165-184.
- Dinçer, B. & Saracaloğlu, A. S. (2011). The investigation of teacher candidates' thinking style profiles in terms of various variables. *The Journal of Turkish Educational Sciences*. 9(4), 701-744.
- Duman, B. & Çelik, Ö. (2011). The relationship between the elementary school teachers' thinking styles and the teaching methods they use. *Elementary Education Online*,10(2), 785-797.
- Ekiz, D. (2015). *Scientific research methods.*, Ankara: Anı Publisher.
- Eryaman, M. Y. (2007). From reflective practice to practical wisdom: Toward a post-foundational teacher education. *International Journal of Progressive Education*, 3(1), 87-107.
- Eryaman, M. Y., & Riedler, M. (2010). Teacher-Proof Curriculum. In C. Kridel (Ed.). *Encyclopedia of Curriculum Studies*. Sage Publications.
- Esmer, E. & Altun, S. (2015). Does the teaching methods make a difference in thinking style preferences?. *Ahi Evran University Journal of Kırşehir Education Faculty* 16(1), 323-340.
- Esmer E.,& Altun S.(2016). Teacher candidates' thinking styles: an investigation of various variables. *Journal Of Education And Training Studies*, 4(5), 160-172.
- Firat Durdukoca, Ş. (2011, April). The comparison of pre-service teachers' thinking styles in terms of various varietie. *2nd International Conference on New Trends in Education and Their Implications*, Antalya.
- Güven, G. & Azkeskin, K. (2018). Investigating the relation between the preschool teachers' thinking styles and their attitudes towards learning. *Journal of Uludağ University Faculty of Education*, 31 (2), 633-650.
- Güven, M. & Kürüm, D. (2008). The relationship between teacher candidates' learning styles and critical thinking dispositions (an investigation on the students in faculty of education in anadolu university). *Elementary Education Online*, 7(1), 53-70.
- İnci, N., Erten, H. & Çitil, N.(2012). The thinking styles of candidate science teachers. *e-Journal of New World Sciences Academy*. 7(3), 930-944.
- Kara, A., (2010). The development of the scale of attitudes toward learning. *Electronic Journal of Social Sciences*. 9 (32), 49-62.
- Kara, A. & Uysal, G. (2015). Examining the conditions of the class in terms of secondary school teachers' attitudes towards learning. *The Journal of Academic Social Science Studies*. 41, 35-53.
- Karasar, N. (2006). *Scientific research methods*. Ankara: Nobel Publisher.
- Kavgaoğlu, D. & Altun, S. (2016). Examination of teachers' thinking style according to their branch and gender. *The Journal of Internetal Education Science*. 3(6), 136-149.
- Kızılaslan Tunçer, B., Kıncal, R. & Şahin, Ç. (2015). The relationship between pre-service teachers' initial reading writing teaching course, metacognitive awareness level, thinking style and attitude. *The Journal of Academic Social Science Studies*. 31, 249-263.

- Komşu, C. U., Samırkaş Komşu, M. & Boz, H. (2018). A study on the attitudes of business owners towards learning and their economic literacy: case of mersin. *Bartın Universty Journal of Faculty of Education*, 7(2), 562-587.
- Kuo, R., F., Hwang, J., G. & Lee, C. C. (2012). A hybrid approach to promoting students' web-based problem-solving competence and learning attitude. *Computers & Education*, 58, 351–364.
- Oflar, Y. & Yıldız, K. (2016). Thinking styles of primary school teachers. *International Journal of Field Education*, 2 (2), 20-37.
- Özbaş, N. & Sağır Uluçınar, Ş.,(2014). The investigation of relationship between elementary school teachers' thinking styles and assessment evaluation methods. *Ondokuz Mayıs University Journal of Faculty of Education*. 33(1), 305-321.
- Sapancı, A., (2014).The relationship between learning styles and academic achievement of prospective teachers', *Asian Journal of Instruction*, 2(2), 60-68.
- Siyer, A. & Tarım, K. (2016). The thinking styles of secondary school 7th grade students and their mathematical power. *International Online Journal of Educational Sciences*, 8 (1), 186-199.
- Sökmen, Y. & Kılıç, D. (2016). The relation between the metacognition, thinking styles and the academic achievement of preservice elementary teachers. *Kastamonu Education Journal*, 24(3), 1109-1126.
- Sönmez, V. (2010). *Social studies teaching and teacher guide*. Ankara: Anı Publisher.
- Sönmez, V. & Alacapınar, F. (2017). *Sampled scientific research methods*. Ankara: Anı Publisher.
- Tay, B. (2005). Learning strategies in social studies text books. *Gazi University Kırşehir Faculty of Education Journal*, 6(1), 209-225.
- Yaşar, M. & Erol, A. (2015). Determination of relationship between the empathic tendency levels and thinking styles of preschool teacher candidates. *International Journal of Assessment Tools in Education*, 2(2), 38-65.
- Yıldızlar, M. (2010). Thinking styles of candidate teachers who come from different cultures. *Hacettepe University Journal of Education*, 39, 383-393.
- Yu, M. T. & Chen, C. (2012). Thinking styles and preferred teacher interpersonal behavior among Hong Kong students. *Learning and Individual Differences*, 22, 554–559.
- Zhang, L. F. (2004). Do university students' thinking styles matter in their preferred teaching approaches?. *Personality and Individual Differences*, 37 (8), 1551–1564.
- Zhang, L. F. (2005). Does teaching for a balanced use of thinking styles enhance students achievement?. *Personality and Individual Differences*, 38 (5), 1135–1147.