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Analysing the Correlations between Primary School Teachers' Teaching Styles and Their Critical Thinking Disposition*

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Abstract

This study aims to analyse the correlations between teaching styles primary school teachers prefer to use and their critical thinking disposition. The research was conducted with the participation of 380 primary school teachers teaching in schools located in Ankara. The study employs relational survey model. In this study "Teaching Styles Inventory" was used to determine the teaching styles preferences of primary school teachers and in order to define their critical thinking dispositions the scale of "Critical Thinking Disposition" was used. Descriptive statistic one way variance analysis (ANOVA) was used in the analysis of the data. It was found in conclusion that the teaching style the participating teachers preferred most was delegator-facilitator-expert style of teaching. Besides, significant correlations were found between primary school teachers' preference of teaching styles and their critical thinking disposition.

Keywords: teaching styles, critical thinking, primary school teacher

1. Introduction

Our need for education, conditions and varied expectations of the society constantly change due to economic and technological factors. Being fast and prolific has become compulsory in order to adapt to those changing circumstances, to meet the needs of present day and to catch up with the time. Considering the fact that one of the most important components of education is education at school, it cannot be denied that teachers have great responsibility. One of the elements playing a great part in shaping students is obviously teachers. Teachers' behaviours, attitudes and approaches are very important for children to draw their road map of their future life. Thus, it important for teachers to be aware of their teaching styles and to know about the limitations and superiorities of teaching style they prefer and to make the teaching process efficient (Evin-Gencel, 2013).

Teaching styles are based on behaviours simulated by teacher-student interaction, and they can change from situation to situation since teachers employ various teaching styles in attaining their teaching and evaluation objectives (Hein et al, 2012). Teaching styles represent teachers' permanent preferences they have in their attitudes and behaviours they display in the teaching-learning interactions with students (Grasha, 2003). Studies performed in the past have shown that teaching styles are associated with students' academic performance (Huang, 2009; Sternberg & Grigorenko, 1995) and that they are capable of influencing students' learning preferences (Lockette, 2006). Grasha describes five properties of teaching styles teachers prefer (Grasha, 1994, 2003).

Expert: An expert is an individual having the expertise and knowledge that students need. Guides and directs students with often references to information and facts. Although such people's positive side is their knowledge and skills, they should pay attention to the fact that extreme forms of knowledge can frighten students without sufficient experience (Grasha, 1994, 2003).

Formal Authority: They have a status in the eye of students with their formal authority, their knowledge and the role model they set. They are concerned about doing the right, acceptable and standard thing. While their positive side is their focus on clear expectations and acceptable goals, they should not ignore flexible learning methods and individual differences (Grasha, 1994, 2003).

Personal model: A personal model believes in setting a model about how to think and how to behave and in giving

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personal examples. Laying emphasis based on direct observations and displaying approaches encouraging students are such people's positive sides. Some teachers may think that their style is the best. If students cannot face up to such people's expectations and standards, they can feel incompetent (Grasha, 1994, 2003).

Facilitator: Facilitators give prominence to student-teacher interaction. Teachers of this characteristic support and encourage their students and they work on projects for which they are counsellors. They generally make efforts to turn students into individuals who are independent and who take on responsibility. They personally make efforts to focus on students' needs and goals in learning environments and to make students successful through alternative class environments and through discovery. This can sometimes be considered as negative since it takes time and there is direct interaction with students. Difficulties can be encountered if students want to work only with positive instructions (Grasha, 1994, 2003).

Delegator: Delegators are seen as guides by students. They try to improve students' independent working. The fact that individuals having this style help students to become competent in at least one subject and to have a vision is the positive side of those individuals. This situation can cause concern on the part of students who are inadequate in terms of readiness for working independently (Grasha, 1994, 2003).

Studies concerning the teaching styles preferred by primary school teachers (Altay, 2009; Maden, 2012) and those teachers' perceptions of teaching profession (Üredi & Üredi, 2007; Üredi & Güven, 2013), correlations with learning styles (Bilgin & Bahar, 2008), comparative studies (Babadoğan, Kassenove & Karaşahinoğu, 2014; Evin-Gencel, 2013), studies on technological pedagogical content knowledge (Mutluoğlu & Erdoğan, 2016) and correlations with mathematics teaching concern (Sarı & Aksoy, 2016) are available in the literature in Turkey. Studies conducted abroad investigate the correlations between primary school teachers' teaching styles and students' learning styles (Sutton, 2003), classroom management approaches (Kazemi & Soleimani, 2016), correlations between self-efficacy perceptions in mathematics teaching and students' achievement in mathematics (Davis-Langston, 2012) and instructors' teaching styles (Mendoza, 2004; McGowan, 2008).

Today's educational objectives consider it important to raise individuals with critical thinking skills. Some researchers emphasise that critical thinking skills are one of the most important skills in life to be successful (Hyslop-Margison, 2003, Tiwari, Lai, So & Yuen, 2006). Due to modifications made in educational systems in recent years, curricula have put learners into the centre and focussed on how to think and especially how to think critically (Asgharheidari & Tahriri, 2015). Because critical thinking - which means non-obsessive, objective and in-depth thinking – helps us to see the qualified and the true one, it may be said to be the most developed and advanced form of thinking (Açışlı, 2016). Facione & Facione define critical thinking as the process of reasoning. They describe it as concluding the existing proofs through appropriate concepts, methods and evaluations depending on what one wants to do or what one believes in (Facione & Facione, 2008). It is an individual's ability to make strong conclusions based on observations and knowledge (Paul, 1988), and it is also the form of logical thinking enabling one to focus on making a decision about what one wants to do (Ennis, 1985).

Critical thinking skill is one of the skills that individuals of this era should acquire. Curricula designed especially with the year 2005 in Turkey stress the need to include activities aiming to instil in individuals critical thinking skills. Critical thinking enables new ideas to emerge in addition, the individual with critical inquiry skills is valuable in terms of community development and continuity (MEB, 2017). Naturally, teachers beside schools and families have important roles in the development of thinking skills (Özdemir, 2005). Teachers supporting critical thinking contribute to the development of students' cognitive development and to increasing positive attitudes towards critical thinking (Seferoğlu & Akbıyık, 2006). However, research has shown that critical thinking disposition is low or at medium level in classroom activities in Turkey and that the proportion of teachers having high levels of critical thinking skills is insufficient (Korkmaz, 2009; Kızıltaş 2011; Polat, 2017). A learning environment capable of developing critical thinking can be formed with teachers who can think critically (Koç-Erdamar & Bangir-Alpan, 2017). Studies analysing the correlations between critical thinking and the teaching methods employed by teachers are also available in the literature (Narin, 2009; Yıldırım, 2005; Bailey & Mentz, 2015). We have not encountered any studies on determining teachers' teaching styles and their critical thinking disposition in Turkey. In foreign literature, however, Quitadama (2002), investigating the effects of differing combinations of teaching styles on university students' critical thinking dispositions, states that teaching styles bring about positive changes in students' critical thinking performance. This current study aims to determine the teaching styles primary school teachers choose to employ and to investigate whether or not there are any significant correlations between teaching styles and critical thinking dispositions.

2. Method

2.1 Research Model

This study uses relational survey model. Relational survey model is a research model trying to determine the relations between two or more variables (Karasar, 2005).

2.2 Study Group

Data were collected from primary school teachers teaching in state schools located in Ankara. Thus, 380 teachers teaching in the central districts of Ankara in 2017-2018 academic year were reached at the beginning of the academic year and the data were collected. Table 1 below shows the demographic properties of the teachers included in the study.

Table 1. Demographic properties of the participating teachers

Variables		n	%
Gender	Female	253	66.6
	Male	127	33.4
	Total	380	100.0
Teaching experience	1-5 years	25	6.6
	6-10 years	32	8.4
	11-15 years	36	9.5
	16-20 years	54	14.2
	21 years or more	233	61.3
	Total	380	100.0
Grade level they teach	1st grade	91	23.9
	2nd grade	98	25.8
	3rd grade	79	20.8
	4th grade	112	29.5
	Total	380	100.0

380 teachers, 66.6% (n=253) of whom were female and 33.4% (n=127) were male, participated in the study. On examining the teachers experience of teaching it was found that 6.6% (n=25) had 1-5 years of teaching experience, 8.4% (n=32) had 6-10 years of experience, 9.5% (n=36) had 11-15 years of experience, 14.2% (n=54) had 16-20 years of experience and 61.3% (n=233) had 21 years or more experience. Of them 23.9% (n=91) taught first graders, 25.8% (n=98) taught second graders, 208% (n=79) taught third graders and 29.5% (n=112) taught fourth graders.

2.3 Data Collection Tools

Two different tools were employed in this study to collect the data. First, "Teaching Style Scale" developed by Grasha (1996) and adapted into Turkish by Üredi (2006) was used in determining the primary school teachers' teaching styles. The scale contained 40 items in total and it is in 7-point Likert type. The scale had five sub-scales-namely, Expert, Formal Authority, Personal Model, Facilitator and Delegator. Each sub-scale had 8 items. Üredi found the Cronbach Alpha coefficient for the scale as .90 and the Cronbach Alpha coefficients for the sub-scales as .75;.76;.83;.87 and .77 respectively. Based on observations, Grasha states that teachers cannot have only one teaching style, and divides teaching styles into four categories as Expert- Formal Authority (E-FA), Personal Model-Expert-Formal Authority (PM-EE-FA), Facilitator-Personal Model-Expert (F-PM-E), and Delegator-Facilitator-Expert (D-F-E). According to the author, the reason for expert teaching style to be included in every style is the thought that teachers have any type of knowledge students need (Üredi, 2006). The values in table 2 are used to evaluate the teaching style sub-scales limits (Grasha, 1994).

Table 2. Teaching style sub-scales limits

Teaching styles	Low	Medium	High
Expert	1.0-3.2	3.3-4.7	4.8-7.0
Formal Authority	1.0-4.0	4.1-5.4	5.5-7.0
Personal Model	1.0-4.3	4.4-5.7	5.8-7.0
Facilitator	1.0-3.7	3.8-5.3	5.4-7.0
Delegator	1.0-2.6	2.7-4.2	4.3-7.0

Second, "Critical Thinking Disposition" developed by Ricketts and Rudd (2005) and adapted into Turkish by Demircioğlu (2012) was used in determining primary school teachers critical thinking disposition. The scale contained 25 items and it was in 5-point Likert type. The scale had three sub-scales: Engagement, Cognitive Maturity and Innovativeness. Demircioğlu found the reliability coefficient of the scale as .88. The author found the Cronbach Alpha coefficients o the sub-scales as .84, .71 and .87.

3. Results

This section includes the findings on primary school teachers' teaching styles and their critical thinking dispositions.

Table 3 shows the percentages and frequencies about the teaching styles participating primary school teachers prefer.

Table 3. Teaching styles primary school teachers prefer

Teaching styles	N	%
Expert-Formal Authority(E-FA)	20	5.3
Personal Model-Expert-Formal Authority (PM-EE-FA)	24	6.3
Facilitator-Personal Model-Expert(F-PM-E)	154	40.5
Delegator-Facilitator-Expert(D-F-E)	182	47.9
Total	380	100

According to table 3, 5.3% (n=20) of the participants prefer expert-formal authority, 6.3% (n=24) of them prefer personal model-expert-formal authority, 40.5% (n=154) prefer facilitator-personal model-expert and 47.9% (n=182) prefer delegator-facilitator-expert teaching style. Accordingly, teachers prefer delegator-facilitator-expert teaching style at the highest rate. The least preferred teaching style, on the other hand, is expert-formal authority teaching style.

Table 4 shows the average scores teachers have received from the sub-scales of teaching styles they prefer.

Table 4. Average for scores teachers have received from the sub-scales of teaching styles they prefer

	Teaching Styles				
$\bar{X}$	Expert	Formal Authority	Personal Model	Facilitator	Delegator
	5.63	5.21	5.74	6.1	5.7
Degree	High	Medium	Medium	High	High

A close examination of table 4 shows that the averages for the sub-scales of expert, facilitator and delegator are high whereas the averages for the sub-scales of formal authority and personal model are medium.

Table 5 shows the descriptive statics for the primary school teachers' responses to critical thinking disposition scale.

Table 5. Score averages for primary school teachers' scores for critical thinking disposition

	$\bar{X}$	Min	Max	Std. deviation
Engagement	41.47	15.00	55.00	5.74
Cognitive maturity	25.23	12.00	34.00	3.78
Innovativeness	25.70	4.00	33.00	3.68
Overall total	92.34	43.00	114.00	10.10

As is clear from table 5, the primary school teachers have differing averages for the sub-scales of critical thinking disposition scale. Accordingly, the teachers had 41.47 points- the highest average- for engagement; which was followed by 25.70 points for the sub-scale of innovativeness and 25.23 points- the lowest average-for the sub-scale of cognitive maturity. They got 92.34 points for the overall scale.

Table 5 shows the results for one-way variance analysis ANOVA test which was performed so as to determine the correlations between primary school teachers' teaching styles and their critical thinking disposition.

Table 6. A comparison of teaching styles primary school teachers prefer and their critical thinking disposition

	Expert		Formal Authority		Personal Model		Facilitator		Delegator	
	$\bar{X}$	Ss	$\bar{X}$	Ss	$\bar{X}$	Ss	$\bar{X}$	Ss	$\bar{X}$	Ss
Engagement	40.33	5.68	37.61	8.78	41.48	5,41	41.62	5.17	42.81	6.71
Cognitive Maturity	24.17	3.90	22.69	5.42	24.27	3,69	25.91	3.58	26.60	3.41
Innovativeness	25.23	4.54	23.75	4.90	25.42	2,91	25.86	3.51	26.31	3.84
Total	8974	10.76	82.23	17.33	91.18	8,17	93.40	8.89	94.72	11.49

As evident from table 6, the teachers have the highest average in the sub-scale of engagement. Teachers preferring the expert, formal authority and personal model styles of teaching have higher averages for innovativeness scores than averages for cognitive maturity scores while teachers preferring the facilitator and delegator styles of teaching have higher averages for cognitive maturity scores than averages for innovativeness scores.

Table 7 below shows the results for one-way variance analysis ANOVA test performed to determine whether or not the differences between average scores the teachers have received from teaching styles scale and from the sub-scales of critical thinking dispositions statistically significant.

Table 7. The ANOVA results for the differences between primary school teachers' teaching styles and their critical thinking disposition

	Sources of Variance	Squares total	Degree of freedom	Squares average	F	P
Engagement	Inter-groups	367.873	4	91.968	2.839	.12
	Intra-groups	12146.809	375	32.391		
	Total	12514.682	379			
Cognitive Maturity	Inter-groups	298.038	4	74.510	5.448	.00
	Intra-groups	5128.646	375	13.676		
	Total	5426.684	379			
Innovativeness	Inter-groups	88.462	4	22.115	1.638	.16
	Intra-groups	5048.441	375	13.499		
	Total	5136.902	379			
Total	Inter-groups	2306.321	4	579.580	5.939	.00
	Intra-groups	36405.518	375	97.081		
	Total	38711.839	379			

Accordingly, there are significant differences between teachers' teaching styles and their critical thinking disposition cognitive maturity score averages ($F=5.448$, $p<.01$) and total score averages ($F=5.939$, $p<.01$) at .01 significance level. These values show that there are significant differences between total score averages for teachers' cognitive maturity and their disposition according to teaching styles they adopt. The F values found for the sub-dimensions of engagement ($F=2.839$, $p<.01$) and innovativeness ($F=1.638$, $p<.01$) do not differ according to teaching styles the teachers choose at .01 significance level. These values show that there are no significant differences between score averages for engagement and innovativeness according to teaching styles teachers choose.

4. Discussion

It is clear that the teaching style the participating teachers prefer the most is delegator-facilitator-expert style, which is followed by facilitator-personal model-expert style and that the one they prefer the least is expert-formal authority style. Grasha (1996) states that the teachers preferring the delegator-facilitator-expert teaching style are the teachers who permit the creation of classroom environments where students can do individual and group activities and express their opinions freely. On examining the sub-scale of teaching styles, it becomes clear that the averages for the sub-scales of expert, facilitator and delegator are high whereas the averages for the sub-scales of formal authority and personal model are medium. In a study conducted with primary school teachers teaching the fifth graders, Altay (2009) also reached similar conclusions. The study conducted by Bilgin and Bahar (2008), where the researchers found delegator-facilitator-expert styles of teaching to be dominantly used by primary school teachers, also has findings similar to the ones obtained in this current study. As different from this study, Üredi and Güven (2013) who investigated primary school teachers' teaching styles and Evin-Gencel (2013) who analysed Turkish and American teachers' teaching styles comparatively- concluded that Turkish teachers preferred facilitator-personal model-expert style. Babadoğan, Kassenova & Karaşahinoğlu (2014), found that the teachers participating in their research had adopted facilitator, personal model and delegator styles of teaching respectively. Maden (2012), on the other hand, concluded that teachers of Turkish language preferred facilitator and personal model styles.

Teachers' awareness of teaching styles they prefer to use and their knowledge of the properties of those teaching styles would be beneficial for their awareness of their profession. Individuals having facilitator style are the individuals who have the ability to ask creative questions which develop critical thinking skills (Grasha, 2003). The fact that facilitator teaching style is dominant in this study can make us think that teaching adopting this style have critical thinking skills. Also, 66.3% (n=233) of participants in survey have 21 years or over experience. Critical thinking skill is a skill which can be taught at any age (Demirel, 2015). According to Quitadama (2002), teacher-centred and student-centred teaching styles are more effective in making students gain critical thinking skills than they are on their own. Therefore, it is important for teachers to know the differences between teaching styles in instilling in students the necessary skills.

It was found in this study that primary school teachers received the highest score in the sub-scale of engagement with an average score of 41.47 points. Individuals with high engagement disposition are the people who are self-confident in communication skills and who can make reasonable explanations in decision-making and problem solving (Demircioğlu, 2012). Teachers preferring the expert, formal authority and personal model styles of teaching have higher averages for innovativeness scores while teachers preferring the facilitator and delegator styles of teaching have higher averages for cognitive maturity scores. But, it is seen that teachers have values close to one of the average scores of cognitive maturity and innovativeness. In critical thinking disposition scale, teachers had an average score of 94.72 in the overall scale. They were the teachers preferring delegator teaching style and facilitator teaching style (with 93.40 points). Narin (2009), Yıldırım (2005) and Bailey & Mentz (2015) found significant and positive correlations between critical thinking

skills and teaching methods used. This study concluded that there are significant differences between teaching style teachers prefer to use and their average scores for the sub-scale of cognitive maturity and their total average scores. Consequently, it may be said that there are significant correlations between teaching styles teachers choose to use and their critical thinking tendencies. Teachers' awareness of teaching styles and of whether they can instil in students the critical thinking skills is important in eliminating their inadequacies in this respect and in contributing to their professional life.

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