

ORIGINAL ARTICLE

Teachers' Curriculum Literacy and Curriculum Fidelity: Differences According to Certain Variables

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Ethical Statement

The decision of the Gazi University Ethics Committee dated 10.11.2020 and numbered 11 was an approval. The committee found the study in compliance with the principles of the Ethics Committee. Consent forms were distributed all participants.

Funding Information

No funding was received for the study.

Conflict of Interest

No conflict of interest is present in the conduction or the reporting of this study.

ABSTRACT

This study aimed to investigate the curriculum literacy and fidelity of teachers in terms of gender, the field of teaching, faculty type, duration of service, the school levels (primary, secondary, high school) and their relationship. The survey model was used in the research, which is a descriptive study. The participants were 449 teachers at state schools of the Ministry of National Education in Turkey. While choosing the study group, the school levels and different teaching fields were determined as the main criteria. As a result of the study, teachers' curriculum literacy and curriculum fidelity were found to be high. While the curriculum literacy levels of the teachers do not change according to their gender, female teachers' curriculum fidelity is higher. Curriculum literacy levels of teachers who graduated from the Faculty of Education are higher than teachers who graduated from other faculties. As the experience of the teachers' increases, their curriculum fidelity decreases, while their curriculum literacy does not differ according to their duration of service. The teachers' curriculum literacy and curriculum fidelity do not differ according to the grade they teach. Finally, it was concluded that there is a positive relationship between teachers' curriculum literacy and curriculum fidelity.

Keywords: Curriculum, Curriculum literacy, Curriculum fidelity.

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INTRODUCTION

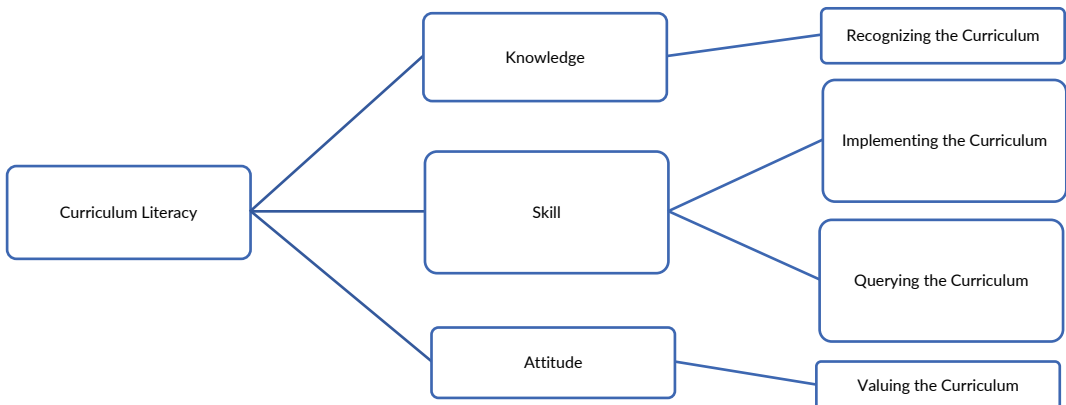
The human learning adventure continues at macro or micro scales within education. This system is constantly planned, developed, and renewed through curriculum. A teacher, an implementer of the curriculum and a student's guide, has the ability and responsibility of establishing a relationship with students, the main subject of this process, and the curriculum. Teachers are primary practitioners approaching the curriculum holistically and support its developers in curriculum development, implementation, and evaluation (Ornstein & Hunkins, 2018). The complications of curriculum development discipline, and the need to solve these require the opinions of teachers because they are the actual implementers of the curriculum. In this study, the concepts of curriculum literacy and curriculum fidelity have been discussed together to examine the dynamic relationship between the teacher and the curriculum in a broader framework.

Curriculum Literacy

To Taylor (2016), successful curriculum is designed with an approach that allow teachers to consciously modify and adapt to them. The success of a curriculum in practice is possible when teachers are equipped with the knowledge and skills required by it (Ari, 2010). According to Demirel (2015), it is required that a teacher comprehend the curriculum accurately and implement it properly as intended. Reading, comprehension, planning, implementation, and evaluation skills in any field of knowledge refer to a higher-level skill as literacy, and it is used in education as curriculum literacy. In Shulman's study (1987), curriculum knowledge is one of the knowledge bases of teaching. Ariav (1988) extended it beyond content and material knowledge as 'curriculum literacy'. Although there are studies on curriculum knowledge, skills, and attitudes of teachers (Kırmızı & Akkaya, 2009; Özcan & Mirzeoğlu, 2014; Yapıcı & Demirdelen, 2007), curriculum literacy constructs a framework for teachers' perception, attitude, and practice skill and proficiency. It is a measurable concept that examines the relationship between the teacher and the curriculum.

Curriculum literacy consists of three main dimensions and four sub-dimensions, including cognitive, affective, and psychomotor domain skills such as 'knowledge', 'skill', and 'attitude' related to the components of the curriculum. These dimensions are summarized in Figure 1 through related research (Aslan, 2018; Erdamar, 2020; Kahramanoğlu, 2019; Keskin, 2020; Yar-Yıldırım, 2018).

Figure 1. Curriculum literacy dimensions



Previously, as the 'knowledge' dimension of curriculum literacy stands for cognitive processes consisting of recognition skills such as having the knowledge of both curriculum and its components, correlating among the four components of the curriculum, and comprehending its philosophical basis, the 'skill' dimension covers both cognitive and psychomotor skills with querying and implementing phases of the curriculum such as preparation, implementation, and evaluation of lesson plans and classroom activities. Parallel to these two, there is the 'attitude' dimension, and it is the affective domain proficiencies between the teacher's cultural, socioeconomic, political, temporal, and subjective perspective and the curriculum.

Curriculum Fidelity

The concept of fidelity to the curriculum has been used in America since the 1970s and 1980s, especially in the field of health (Backer, 2000; Dane & Schneider, 1998; Dusenbury, Hansen & Giles, 2003). Later, along with the curriculum evaluation studies (Remillard, 2005; Songer & Gotwals, 2005; Vartuli & Rohs, 2009), it was also used in the field of education. In addition, many studies reveal that fidelity to the curriculum is an important component in the effectiveness of the curriculum (Dane & Schneider, 1998; Dusenbury, Brannigan, Falco & Hansen, 2003; Fullan & Pomfret, 1977). Fidelity to the curriculum guides the measurement of the harmony between the systematic and versatile planned curriculum and the implemented curriculum (Marsh & Willis, 2007). In addition, there are studies indicating that fidelity to the curriculum is important in terms of showing the differences between the targeted curriculum and the actual curriculum (Dusenbury, Brannigan, et al., 2003; Roehrig, Kruse & Kern, 2007).

Curriculum has an important role in achieving qualified individuals, the main objective of education, social development, and directing education and unifying it in this process (Özdemir, 2012). The point where the innovated curricula correspond to the student is the teacher's attention level and the way it is implemented, as well as the comparison between the targeted curriculum and the actual one's outputs. This need for comparison arises from problems such as not evaluating the obsolete program or the change process itself to clarify whether the curriculum is successful or not. That's why the concept of curriculum fidelity is essential (Dusenbury, Hansen & Giles, 2003). Curriculum implementation, assessment of implementation, measuring the effectiveness of the curriculum in practice, and degree of compliance with curriculum (Biglan & Taylor, 2000; Caner & Tertemiz, 2010; Güneş & Baki, 2011; Zengin, 2010) issues are conceptualized in one by curriculum fidelity.

In the literature, it has been the subject of evaluation studies, especially on health (Backer 2000; Dane & Schneider 1998; Dusenbury, Hansen & Giles, 2003) and education areas (Remillard, 2005; Songer & Gotwals, 2005; Vartuli & Rohs, 2009) and implementation fidelity (Dusenbury, et al., 2003; Fullan & Pomfret, 1997; Vartuli & Rohs, 2009) since the 1970s. Curriculum fidelity is the implementation of a new curriculum by teachers as planned by curriculum development experts (Pence, Justice & Wiggins, 2008). Although there is no consensus in the literature about what it is, what it consists of, and how it can be measured (Bümen, Çakar & Yıldız, 2014), a gap between planning and implementation has been emphasized in current definitions (Dane & Scheider, 1998; Dusenbury, Brannigan, et al., 2003; Mowbray, Holter, Teague & Bybee, 2003; Dhillon, Darrow & Meyers, 2015). From the perspective of Posner (1995), curriculum fidelity is the realization of an official curriculum as in the scope of the operational curriculum. Investigating curriculum fidelity is a process evaluation. By evaluating it, the connection between the implementation and its outcomes might be systematically interpreted, and the factors hindering it can be discovered (Dhillon, et al., 2015). It has been revealed that

curriculum fidelity is an important component in determining the efficiency of a curriculum and ensuring its effectiveness by accessing reasons behind the differences between an official curriculum and an operational one (Dane & Schneider, 1998; Fullan & Pomfret, 1977; Dusenbury, Hansen & Giles, 2003; Dusenbury, Brannigan, et al., 2003; Roehrig, Kruse & Kern, 2007).

When curriculum fidelity is associated with the implementation process of the curriculum, it is necessary to have knowledge about the curriculum and to carry out the planning stage before this process. Numerous studies are showing that deficiencies in the knowledge and perception stage of the curriculum also cause ones in the application stage (Akdeniz & Paçin, 2012; Doğan & Semerci, 2016; Feyzioğlu, 2014; Güneş & Baki, 2011; Kahraman, 2014; Kaymakçı, 2015; Keleş, Haser & Koç, 2012; Özcan & Mirzeoğlu, 2014; Yapıcı & Demirdelen, 2007). Therefore, the necessity of examining these two concepts arises as curriculum literacy and curriculum fidelity intersect at the implementation phase of the curriculum. In other words, to which extent can curriculum fidelity be developed without curriculum literacy.

Curriculum literacy requires that a teacher should be aware of the features of the curriculum and implement them and is able to use the curriculum as a guide by making critical evaluations and interpretations, as well (Keskin, 2020). On the other hand, curriculum fidelity is the implementation of a designed curriculum by teachers as in the original form. The relationship between the curriculum and teachers' characteristics such as knowledge, skills, and attitudes to curriculum affect their fidelity to implementation (Ayers, 1992). Without curriculum literacy, curriculum fidelity cannot be adequately understood. Curriculum literacy is a teacher qualification (Keskin & Korkmaz, 2021), and so it should be evaluated with curriculum fidelity. As a result, it is important to determine the curriculum literacy levels and curriculum fidelity of teachers in terms of different variables to identify the problems experienced by teachers in the teaching process and to produce solutions. It can also provide feedback about curriculum fidelity, curriculum evaluation, and development studies.

Purpose of the Study

This study aimed to investigate teachers' curriculum literacy levels and curriculum fidelity levels in terms of gender, field of teaching, faculty type, duration of service, and school levels (primary, secondary, high school) and the relationship between them. The research questions are given below.

1. What is curriculum literacy levels of teachers?
2. What is curriculum fidelity levels of teachers?
3. Do teachers' 'curriculum literacy' and 'curriculum fidelity' levels differ according to variables, such as gender, field of teaching, faculty type, duration of service, and schools they teach in (primary, secondary, high school)?
4. Is there a relationship between teachers' curriculum literacy and their curriculum fidelity?

METHOD

Research Design

The survey model of a descriptive study has been applied in the research. In this model, it is aimed to explain and reveal the current situation by describing it (Sönmez & Alacapınar, 2017). To Büyüköztürk (2012), the relationship between variables measured in survey studies can be examined.

Setting and Participants

The participants of the study consisted of a total of 2310 teachers, including primary school (n: 689), secondary school

(n: 716), and high school (n: 905) teachers working in public schools of the Ministry of National Education in the first semester of the 2019-2020 academic year and the second semester of the 2020-2021 academic year in a district of the province of Turkey. Our main criteria when choosing the study group were the school levels and different teaching fields. Also, volunteering was considered as the basis, and 478 teachers responded our questionnaires. Twenty-nine questionnaires were excluded from the analysis due to contradictory answers. Thus, study group was composed of 449 teachers. The demographic information of the study group is shown in Figures 2 and 3 below in detail.

Figure 2. The Demographic Information of the Study Group: Gender and Field of Teaching

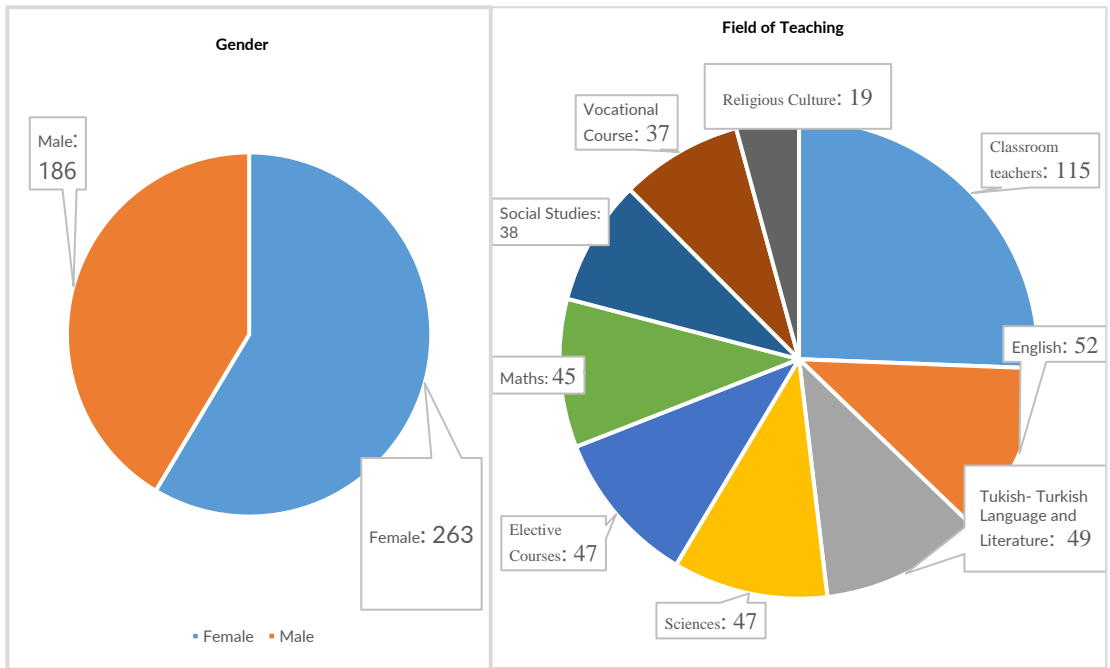
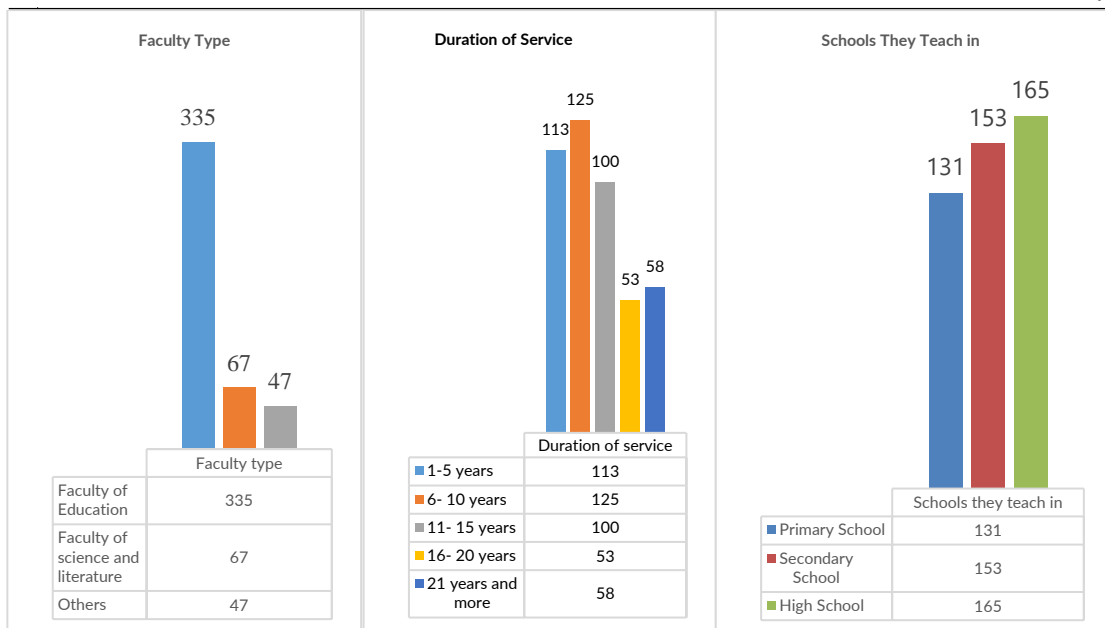


Figure 3. The Demographic Information of the Study Group: Faculty Type, Duration of Service, Schools They Teach in



Instruments

Personal information form, The Curriculum Literacy Scale (Bolat, 2017), and The Curriculum Fidelity Scale (Yaşaroğlu & Manav, 2015) were used in the research. Data about all teachers' gender, field of teaching, faculty type, duration of service, and schools they teach in have been collected through the 'Personal Information Form'.

The Curriculum Literacy Scale (Bolat, 2017) has been used to determine teachers' curriculum literacy levels. It consists of two factors 'reading' and 'writing', and 29 items in total. The Cronbach's Alpha internal consistency coefficient of the whole scale is 0.94 (for reading 0.888 and for writing 0.907). For our study, the internal consistency coefficient and Confirmatory Factor Analysis (CFA) have been recalculated for reliability with a different participant group. Accordingly, the Cronbach's Alpha internal consistency coefficient of the whole scale has been found as .946. (for reading factor .694, for writing factor .875) In addition, the fit indices of it, consisting of 29 items and 2 factors, (χ^2/sd : 2.78, RMSEA: 0.062, SRMR: 0.062, PGFI: 0.56, CFI: 0.91, NFI: 0.91, NNFI: 0.92, PNFI: 0.59, RFI: 0.91, IFI: 0.91) are proper level.

The Curriculum Fidelity Scale (Yaşaroğlu & Manav, 2015) has been applied to determine teachers' curriculum fidelity levels. The scale with the single factor consisting of 20 items and the Cronbach's Alpha internal consistency coefficient was calculated as .892. For our study, recalculated the Cronbach Alpha value for this study with a different participant group has been found as .916. Additionally, according to recalculated CFA, the fit indices of that scale consisting of 20 items and 1 factor (χ^2/Sd : 1.94, RMSEA: 0.067, SRMR: 0.066, PGFI: 0.69, CFI: 0.90, NFI: 0.90, NNFI: 0.90, PNFI: 0.68, RFI: 0.90, IFI: 0.90) are acceptable. To sum up, both these two scales are not only valid and reliable scale for the research but also were applied in a wide range of studies in the literature (Çaydaşı, 2019; Dilek, 2020; Gülpek, 2020; Kabaş, 2020; Kuyubaşıoğlu, 2019; Şahin, 2020; Vayvay, 2020).

Procedure

Permission from the Ethics Committee of the University and the approval of the Ministry of National Education Provincial Directorate of National Education was received before starting to collect the data. The personal information form and both scales were first transferred online via Google Forms. In the introduction part of the forms, teachers were informed about the research, and a voluntary participation consent form was presented. The prepared form links were sent to the teachers via e-mail, and the data were collected from the volunteering participants.

Data Analysis

Here is SPSS Statistics was used for data analysis in the study. Firstly, the data set was examined, then outlier values were checked by a box-plot graph and crossover of the questions. Secondly, the Kolmogorov-Smirnov normality test was used for parametric statistics, and the results are given in Table 1. As the result of normal distribution, regarding mean-media closeness and that kurtosis and skewness should be between ± 1 , when the arithmetic mean, mode and median are equal or close (George & Mallery, 2010; Tabachnick & Fidell, 2013). The data set was normally distributed; thus, parametric tests were preferred.

Table 1. Kolmogorov-Smirnov Test Results

Variables	Statistic	sd	p	Mean	Media	Skewness	Kurtosis
Curriculum Fidelity Scale	0.176	449	0.00	92.52	95	-0.944	0.296
Curriculum Literacy Scale	0.178	449	0.00	119.95	123	-0.696	-0.647
CLS Reading	0.254	449	0.00	56.71	58	-0.899	-0.53
CLS Writing	0.204	449	0.00	63.23	65	-0.716	-0.438

* $p < 0.05$

Mean and standard deviation values of descriptive statistics, were calculated to determine the teachers' curriculum literacy levels and curriculum fidelity. Whether teachers' curriculum literacy and curriculum fidelity differ according to gender was determined via independent sample T-test. One-way analysis of variance was conducted to determine whether they differ according to the field of teaching, faculty type, duration of service, and school grades they teach in. Last of all, whether there was a relationship between teachers' curriculum literacy level and their curriculum fidelity was analysed by Pearson correlation analysis.

RESULTS AND DISCUSSION

In this section, the results of the study are presented in line with the research questions under the sub-headings of 'curriculum literacy' and 'curriculum fidelity', the two main concepts of the study, and their relationship.

The first question of the research is "What is curriculum literacy levels of teachers?" The findings of this question are presented in Table 2. Table 2 shows the teachers' curriculum literacy ($\bar{x} = 117.72$). The lowest score obtained from the scale was 92, and the highest score was 130. The scale is a 5-point Likert type. The item with the highest mean on the scale was the 2nd (I can check the relevance of the content to student level) with 4.73 while the item with the lowest mean was the item 8th (I can comprehend aim and objectives) with 1.25. While the teachers' mean of the reading factor was 56.72, the teachers' mean of the writing factor was 63.27. In other words, the level of the reading curriculum of the teachers is lower than writing.

Table 2. Descriptive Statistics of the Teachers' Curriculum Literacy Levels

Factors	Items	Mean	Standard Deviation	N
READING	Item-1	4.58	0.569	449
	Item-2	4.73	0.464	449
	Item-3	4.71	0.476	449
	Item-4	4.67	0.534	449
	Item-5	4.68	0.516	449
	Item-6	1.35	0.574	449
	Item-7	4.57	0.56	449
	Item-8	1.25	0.475	449
	Item-9	4.72	0.484	449
	Item-10	4.72	0.501	449
	Item-11	4.7	0.491	449
	Item-12	1.33	0.52	449
	Item-13	4.71	0.517	449
	Item-14	1.34	0.548	449
	Item-15	4.66	0.537	449
		$\bar{x}= 56.72$		
WRITING	Item-16	4.51	0.675	449
	Item-17	4.57	0.634	449
	Item-18	4.58	0.629	449
	Item-19	4.45	0.673	449
	Item-20	4.47	0.651	449
	Item-21	4.52	0.598	449
	Item-22	4.53	0.637	449
	Item-23	4.64	0.554	449
	Item-24	4.53	0.582	449
	Item-25	4.44	0.613	449
	Item-26	4.51	0.598	449
	Item-27	4.47	0.637	449
	Item-28	4.39	0.676	449
	Item-29	4.62	0.596	449
		$\bar{x}= 63.27$		
Curriculum Literacy		$\bar{x}= 117.72$		

Results for teachers' curriculum literacy according to gender are presented in Table 3. According to Table 3, the teachers' curriculum literacy has not shown a significant difference ($t=1.85, p=.06, p<.05$) according to their genders. However, there was a significant difference ($t=2.68, p=.008, p<.05$) according to the gender in the reading factor of the scale. Reading levels of female teachers ($\bar{x}=3.80$) were higher than male teachers' reading levels ($\bar{x}=3.75$). In the writing factor, there was no significant difference ($t=1.31, p=.19, p<.05$) according to gender.

“Does Teachers' curriculum literacy levels differ according to the variables of gender, field of teaching, faculty type, duration of service, and schools they teach in?” The analyzes made for this question are presented in Tables below.

Table 3. Results for the Teachers' Curriculum Literacy Levels According to Gender

	Gender	N	Mean	Standard-Deviation	t	df	p
Reading	Female	263	3.80	0.18	2.683	357.119	*0.008
	Male	186	3.75	0.21			

Writing	Female	263	4.54	0.50	1.313	447	0.19
	Male	186	4.48	0.51			
Literacy	Female	263	4.16	0.31	1.849	447	0.065
	Male	186	4.10	0.33			

* $p < 0.05$

Results for teachers' curriculum literacy levels according to the field of teaching are given in Table 4. The teachers' curriculum literacy levels indicate a significant difference according to their branches ($F=4.5$, $p=.00$, $p<.05$) according to Table 4. To determine from which group the significant difference originated, the LSD test, one of the post-hoc tests, was used since the homogeneity of variance has been ensured. Accordingly, the curriculum literacy levels of Turkish Language and Turkish Language and Literature teachers ($\bar{x}=4.22$) were higher than the others. Subsequently, classroom, mathematics, and English teachers had the highest level ($\bar{x}=4.20$). The teachers with the lowest literacy level were science teachers with a mean of 3.98. On the other hand, in the factors of the scale, there was also a significant difference in both reading ($F=3.39$, $p=.001$, $p<.05$) and writing ($F=4.39$, $p=.00$, $p<.05$) according to the field of teaching. According to the LSD test, the average scores of Turkish-Turkish Language and Literature teachers were higher than the others, with an average of 3.84 in the reading and 4.62 in the writing.

Table 4. Results for the Teachers' Curriculum Literacy Levels According to Field of Teaching

Field of Teaching		N	Mean	SD	F	p	LSD
Reading	Turkish-Turkish Language Literature	49	3.84	0.16	3.389	*0.001	1>5
	Social Sciences	38	3.76	0.21			1>7
	Classroom Teachers	115	3.82	0.18			1>8
	Maths	45	3.80	0.20			1>9
	Science	47	3.70	0.21			
	English	52	3.81	0.20			
	Vocational Courses	37	3.74	0.20			
	Elective Courses	47	3.74	0.19			
	Religious and Culture	19	3.68	0.24			
Writing	Turkish-Turkish Language Literature	49	4.62	0.51	4.387	*0.00	1>5
	Social Sciences	38	4.41	0.48			1>8
	Classroom Teachers	115	4.61	0.51			1>9
	Maths	45	4.63	0.44			
	Science	47	4.28	0.52			
	English	52	4.60	0.50			
	Vocational Courses	37	4.53	0.45			
	Elective Courses	47	4.40	0.45			
	Religious and Culture	19	4.18	0.58			
Literacy	Turkish-Turkish Language Literature	49	4.22	0.30	4.554	*0.00	1>2
	Social Sciences	38	4.07	0.33			1>5
	Classroom Teachers	115	4.20	0.31			1>8
	Maths	45	4.20	0.30			1>9
	Science	47	3.98	0.33			
	English	52	4.20	0.34			
	Vocational Courses	37	4.12	0.29			

Elective Courses	47	4.06	0.30
Religious and Culture	19	3.92	0.38

* $p < 0.05$

Table 5 shows the results for teachers' curriculum literacy levels according to faculty type. The teachers' curriculum literacy indicated a significant difference ($F=8.87, p=.00, p<.05$) according to the faculty they graduated from. Tamhane T2 test, one of the post hoc tests, was used because there was no homogeneity of variance to determine which group caused this significant difference. Also, the teachers' curriculum literacy graduated from the faculty of education ($\bar{x}=4.17$) was higher than the ones graduated from others. On the other hand, there was a significant difference in teachers' literacy levels in both reading ($F=4.79, p=.009, p<.05$) and writing factors ($F=9.29, p=.00, p<.05$) According to the Tamhane T2 test results, teachers graduated from the faculty of education had higher literacy not only in reading factor ($\bar{x}= 3.8$) but also writing factor ($\bar{x}= 4.57$) compared to teachers who graduated from other faculties.

Table 5. Results for the Teachers' Curriculum Literacy Levels According to Faculty Type

	Graduate Faculty Type	N	Mean	SD	F	p	Tamhane T2
Reading	Faculty of Education	335	3.80	0.19	4.79	*0.009	1>2
	Faculty of Science and Literature	67	3.74	0.22			1>3
	Others	47	3.72	0.18			
Writing	Faculty of Education	335	4.57	0.49	9.29	*0.00	1>2
	Faculty of Science and Literature	67	4.41	0.57			1>3
	Others	47	4.27	0.46			
Literacy	Faculty of Education	335	4.17	0.32	8.866	*0.00	1>2
	Faculty of Science and Literature	67	4.07	0.37			1>3
	Others	47	3.99	0.27			

* $p < 0.05$

Results for the teachers' curriculum literacy levels according to duration of service are given in Table 6. According to the one-way Anova test results, there was no significant difference in reading ($F=0.99, p=.41, p<.05$) and writing ($F=1.17, p=.32, p<.05$) factors and literacy ($F=1.046, p=.38, p<.05$) according to duration of service.

Table 6. Results for the Teachers' Curriculum Literacy Levels According to Duration of Service

	Service Length	N	Mean	SD	F	p
Reading	1-5 years	113	3.79	0.20	0.999	0.408
	6-10 years	125	3.80	0.19		
	11-15 years	100	3.78	0.20		
	16-20 years	53	3.76	0.19		
	21 years and more	58	3.75	0.20		
Writing	1-5 years	113	4.49	0.57	1.17	0.323
	6-10 years	125	4.56	0.46		
	11-15 years	100	4.51	0.47		
	16-20 years	53	4.58	0.47		
	21 years and more	58	4.41	0.57		
Literacy	1-5 years	113	4.13	0.36	1.046	0.383
	6-10 years	125	4.17	0.30		
	11-15 years	100	4.13	0.31		
	16-20 years	53	4.16	0.30		

21 years and more	58	4.07	0.35
	47	3.72	0.18

* $p < 0.05$

Results for teachers' curriculum literacy according to the school grade they teach are presented in Table 7. The teachers' curriculum literacy levels did not show a significant difference ($F=2.78$, $p=.06$, $p < .05$) according to classes they teach in. However, the difference was significant in the reading ($F=3.44$, $p=.03$, $p < .05$) factor. To determine from which group the significant difference originated, the LSD test, one of the post-hoc tests, was used since the homogeneity of variance was ensured. To the results, the reading levels of teachers at the primary school level ($\bar{x} = 3.81$) were higher than teachers at high school ($\bar{x} = 3.75$). In the writing factor, there was no significant difference ($F=2.47$, $p=.08$, $p < .05$) according to school levels.

Table 7. Results for the Teachers' Curriculum Literacy Levels According to Schools They Teach

	Levels	N	Mean	SD	F	p	LSD
Reading	Primary	131	3.81	0.19	3.44	*0.033	1>3
	Secondary	153	3.79	0.19			
	High school	165	3.75	0.21			
Writing	Primary	131	4.60	0.51	2.473	0.085	
	Secondary	153	4.49	0.50			
	High school	165	4.48	0.50			
Literacy	Primary	131	4.19	0.32	2.778	0.063	
	Secondary	153	4.13	0.32			
	High school	165	4.10	0.33			

* $p < 0.05$

Another question of the study is "What is the curriculum fidelity levels of teachers?". When the descriptive statistics of the curriculum fidelity scale in Table 8 below are analyzed, teachers' curriculum fidelity+ was high ($\bar{x} = 91.1$). The lowest score obtained from the scale was 66, and the highest score was 100. It is a 5-point Likert-type scale. The item with the highest mean of the scale was the 5th item (*I examine the curriculum of my course at the beginning of the semester*) ($\bar{x} = 4.82$) and the lowest one ($\bar{x} = 4.04$)" was the 12th (*Planning the education process, I do not need to read the objectives' explanations*).

Table 8. Descriptive Statistics of the Teachers' Curriculum Fidelity Levels

	Mean	SD	N
Item-1	4.8	0.46	449
Item-2	4.72	0.513	449
Item-3	4.66	0.559	449
Item-4	4.77	0.46	449
Item-5	4.82	0.439	449
Item-6	4.43	1.23	449
Item-7	4.7	0.517	449
Item-8	4.4	1.289	449

Item-9	4.74	0.515	449
Item-10	4.56	0.686	449
Item-11	4.7	0.53	449
Item-12	4.04	1.393	449
Item-13	4.63	0.679	449
Item-14	4.43	1.296	449
Item-15	4.72	0.569	449
Item-16	4.55	0.632	449
Item-17	4.76	0.56	449
Item-18	4.73	0.558	449
Item-19	4.74	0.512	449
Item-20	4.61	0.625	449
	$\bar{x}=91.1$		

The question; “Does Teachers' curriculum fidelity levels differ according to gender, field of teaching, faculty type, duration of service, and the schools they teach in?” was sought.

Results for the teachers' curriculum fidelity levels according to gender are given in Table 9. Accordingly, teachers' curriculum fidelity levels differs according to gender, and this difference ($t=2.77, p=.006, p<.05$) is significant. Female teachers' curriculum fidelity ($\bar{x}=4.67$) is higher than male teachers' ($\bar{x}=4.56$).

Table 9. Results for the Teachers' Curriculum Fidelity Levels According to Gender

	Gender	N	Mean	SD	t	df	p
Curriculum Fidelity	Female	263	4.67	0.38	2.769	375.566	*0.006
	Male	186	4.56	0.42			

* $p<0.05$

Results for teachers' curriculum fidelity levels according to the field of teaching are presented in Table 10. According to their field of teaching, no significant difference ($F=.82, p=.59, p<.05$) has been found.

Table 10. Results for the Teachers' Curriculum Fidelity Levels According to Field of Teaching

	Field of Teaching	N	Mean	SD	F	p
Curriculum Fidelity	Turkish-Turkish Language Literature	49	4.69	0.41	0.816	0.588
	Social Sciences	38	4.55	0.45		
	Classroom Teachers	115	4.63	0.43		
	Math	45	4.58	0.39		
	Science	47	4.54	0.42		
	English	52	4.67	0.41		
	Vocational Courses	37	4.66	0.33		
	Elective Courses	47	4.64	0.35		
	Religious and Culture	19	4.69	0.34		

* $p<0.05$

Results for teachers' curriculum fidelity levels according to graduate faculty type are shown in Table 11. There is no significant difference ($F=1.25$, $p=.29$, $p<.05$) in teachers' curriculum fidelity levels according to the faculty type they graduated from.

Table 11. Results of the Teachers' Curriculum Fidelity Levels According to Graduate Faculty Type

	Graduate Faculty Type	N	Mean	SD	F	p
Curriculum Fidelity	Faculty of Education	335	4.64	0.41	1.249	0.288
	Faculty of Science and Literature	67	4.59	0.40		
	Others	47	4.55	0.36		

* $p<0.05$

Results for teachers' curriculum fidelity levels according to their duration of service are available in Table 12. Teachers' curriculum fidelity levels differs significantly ($F=5.99$, $p=.00$, $p<.05$) according to their professional seniority. LSD test has been conducted to determine which professional seniority range of teachers causes this significant difference. Therefore, teachers with 1-5 years ($\bar{x}=4.71$) have higher curriculum fidelity levels than the others. Teachers with the lowest curriculum fidelity levels are the ones with 21 years or more ($\bar{x}=4.45$).

Table 12. Results for the Teachers' Curriculum Fidelity Levels According to Their Duration of Service

	Service Length	N	Mean	SD	F	p	LSD
Curriculum Fidelity	1-5 years	113	4.71	0.39	5.998	*0.00	1>3
	6-10 years	125	4.69	0.37			1>5
	11-15 years	100	4.55	0.40			1>3>5
	16-20 years	53	4.66	0.36			
	21 years and more	58	4.45	0.46			

Results for teachers' curriculum fidelity levels according to classes they teach are presented in Table 13. There is no significant difference ($F=.08$, $p=.92$, $p<.05$) in teachers' curriculum fidelity levels according to the schools they teach in.

Table 13. Results for the Teachers' Curriculum Fidelity Levels According to Schools They Teach

	Levels	N	Mean	SD	F	p
Curriculum Fidelity	Primary	131	4.63	0.43	0.082	0.921
	Secondary	153	4.62	0.38		
	High school	165	4.63	0.41		

* $p<0.05$

The last question was: "Is there a relationship between teachers' curriculum literacy levels and their curriculum fidelity levels?" Based on this question, Table 14 shows the results of the investigation of the relationship between teachers' curriculum literacy levels and their curriculum fidelity levels. According to the correlation analysis, there is a positive and moderately significant relationship between teachers' curriculum literacy levels and their curriculum fidelity levels and both reading and writing the curriculum and their curriculum fidelity.

Table 14. Investigation of the Relationship between Teachers' Curriculum Literacy Levels and Their Curriculum Fidelity Levels

		Literacy	Reading	Writing	Fidelity
Literacy	r		.850**	.976**	.558**
	p		0.00	0.00	0.00

	N		449	449	449
	r	.850**		.713**	.518**
Reading	p	0.00		0.00	0.00
	N	449		449	449
	r	.976**	.713**		.526**
Writing	p	0.00	0.00		0.00
	N	449	449		449
	r	.558**	.518**	.526**	
Fidelity	p	0.00	0.00	0.00	
	N	449	449	449	

**
p<0.01

CONCLUSION AND RECOMMENDATIONS

In this section, the results of the study are discussed and concluded under sub-headings of 'curriculum literacy' and 'curriculum fidelity', the two main concepts of the study, and their relationship.

In this study, it was concluded that teachers' curriculum literacy levels is high, which was supported by many studies in the literature (Aslan, 2018; Gülpek, 2020; Huang, Cheng & Yang, 2017; Kahraman, 2020; Keskin, 2020; Kuyubaşoğlu, 2019; Vayvay, 2020; Çetinkaya & Tabak, 2019; Dilek, 2020; Erdem & Eğinir, 2018; Şahin, 2020). In addition, some studies that find the literacy levels of teachers moderate (Kahramanoğlu, 2019; Karakuş, 2010; Saral, 2019) and even show that teachers do not know enough about their curriculum are noteworthy (Arı, 2010; Baştürk & Dönmez, 2011; Kırmızı & Akkaya, 2009). According to another result of this study, teachers' curriculum literacy was found to be higher in the writing dimension. However, there are also some studies in the literature that have reached a different conclusion (Vayvay, 2020; Kahraman, 2020; Erdem & Eğinir 2018). According to another finding of the research, teachers reached the highest average in the items related to 'content', 'educational status', 'measurement-evaluation', and 'goals' of the curriculum. The lowest mean scores of the teachers in the literacy scale were in the items 'I can determine the teaching technique suitable for the target' and 'I can understand what the target behavior wants'. According to Sánchez and Valcárcel (1999), most teachers think that the goals are determined according to the content. However, the content, educational status, and testing status elements of the curriculum are determined according to the goals (Demirel, 2015). In their research, Kuyubaşoğlu (2019) found that teachers had difficulty in determining which target dimension of the given target behavior in their literacy levels, and Şahin (2020) found that teacher candidates had difficulty in understanding the goals. In this context, it can be said that although the literacy levels of teachers are high, they have difficulty, especially in 'goals' competencies.

More than half of the participants were female teachers. The teachers' literacy levels did not differ according to gender, and this was supported by certain researches (Aslan, 2018; Dilek, 2020; Erdem & Eğinir, 2018; Gülpek, 2020; Mansuroğlu, 2019; Vayvay, 2020). On the other hand, there are also studies stating that females are more literate in the curriculum (Gömlüksiz & Erdem, 2018; Kahramanoğlu, 2019; Saral, 2019). Also, female teachers have a higher average in the reading dimension. Gülpek (2020) achieved the same result in her study. There are also some studies stating that female teachers are more successful in writing than males (Erdem & Eğinir, 2018; Sarıgöz & Bolat, 2018).

Looking at the fields of teaching, the teachers with the highest curriculum literacy were Turkish-Turkish Language and

Literature teachers. They were followed by classroom teachers, mathematics, and English teachers. Some studies support Turkish-Turkish Language and Literature teachers, and candidates have higher curriculum literacy (Kana, Aşçı, Zorlu-Kana, & Elkıran, 2018; Kırmızı & Akkaya, 2009). On the contrary, Mansuroğlu (2019), Aslan, and Gürten (2019) found teachers' curriculum literacy levels did not change according to their branches. By an overall assessment of the literature, the fact the literacy levels of Turkish-Turkish Language and Literature teachers are high can result from the nature of their field of teaching. Consequently, the specialty of these teachers takes place in the axis of reading- writing and literacy, language skills, and literary works. Classroom teachers' literacy levels were also found to be higher than the others. The teachers' curriculum literacy levels who graduated from the Faculty of Education were higher than the teachers who graduated from other faculties. Erdem and Eđmir (2018) found the faculty of education students' curriculum literacy levels were higher than pedagogical formation students. There are other studies supporting this result of the study (Kahraman, 2020; Saral, 2019). This may be because the students of the faculty of education take pedagogical courses over time and relatively, or that the faculties of education internalize the profession in the school climate. On the contrary, Aslan (2018) and Mansuroğlu (2019) stated there was no significant relationship between teachers' curriculum literacy levels and graduate faculty type, which may have resulted from individual characteristics and self-development. However, the duration spent by the teachers in the profession does not affect curriculum literacy. Many studies support this (Aslan, 2018; Kahramanođlu, 2019; Mansurođlu, 2019). On the other hand, Saral (2019) stated as teachers' seniority increased, their literacy rate decreased. In addition, it was concluded in Vayvay's (2020) research that teachers with 11-15 years of experience had higher literacy levels than teachers with 16 years or more experience. The participants of this research consist of teachers with 6-10 years and 1-5 years at most. The fact that senior teachers did not participate much in the study may have caused this situation. There was no difference among the literacy levels of primary, secondary, and high school teachers. Most studies on curriculum literacy have been conducted with groups of teachers working at one level. In addition, in this study, primary school teachers' literacy levels in the reading dimension was higher than high school teachers. It may be a result of that the teachers at the primary school are mostly classroom teachers, or that classroom teachers are responsible for more than one-course curriculum. In addition, Kahramanođlu's (2019) study showed that primary school teachers were more competent in the structural features of the curriculum than secondary school teachers.

When examining the curriculum fidelity levels of the teachers, their curriculum fidelity was high. There are studies in the literature that support this result of the research (Can, 2020; Kabaş, 2020; Benli-Özdemir & Arık, 2017; Dinç & Dođan, 2010; Kamber, Acun & Akar, 2011).

However, among the factors affecting curriculum fidelity, teachers' attitude was a small slice of the pie. Remillard (2005) also concluded some teachers did not care about the curriculum profoundly, while others were tightly bound to the curriculum. Here, the research methods used on examining teachers' curriculum fidelity can affect the results. The contradiction between these results leads to the question of whether a high level of teachers' curriculum fidelity is due to an attitude with a positive perception, or it is a blind commitment. Some of the teachers are committed to curriculum either because they find it practical and convenient, or they desperately think it is compulsory in centrally managed education systems. Likewise, curriculum fidelity is also associated with respect for it (Gerstner & Finney, 2013; Wang Stanton, Deveaux, Poitier, Lunn, Koci, ... & Rolle, 2015). Even so, remarkable benefits of it have been identified in students' academic achievements, self-efficacy, and behaviours (Bellg et al., 2004). In addition, according to Gerstner & Finney (2013) and Wang et al., (2015), there is a connection between commitment to the curriculum and respect for the

curriculum.

According to another result, teachers examine the curriculum at the beginning of the academic year. It is open to debate how beneficial it would be to examine the curriculum only at the beginning of the semester because curriculum is prepared with the aim of guiding the teacher from beginning to end. Accordingly, it is more important to what extent teachers focus on the curriculum than its frequency. According to the results, there was a connection between teachers' high fidelity and one of the items they mostly agree with, giving importance to students' active participation in the process. Another result was female teachers' curriculum fidelity was higher than that of males. However, some research results in the literature (Can, 2020; Gürbüz, 2020; Çaydaşı, 2019) are in contradiction with this study. Still, new studies are required to comment whether gender affects curriculum fidelity or not. The teachers' field of teaching did not make a difference in their curriculum fidelity. It needs to be determined whether the field of teaching is a variable of curriculum fidelity. There is no effect of the educational institution from which teachers graduated on teachers' curriculum fidelity. This result is somewhat remarkable because consistency in professional development is also related to the accumulation of broader experience gained both in the professional field and in the teaching process, program implementation, and evaluation (Garet, Porter, Desimone, Birman & Yoon, 2001). It should be investigated the curriculum fidelity can be achieved via which professional competence.

Teachers with 1-5 years of experience had more curriculum fidelity than others. Then the teachers with 6-10 years of experience followed them. The teachers with the lowest curriculum fidelity had the highest experience (21 years and above). However, there are also studies showing that professional seniority has no effect on curriculum fidelity (Çaydaşı, 2019; Burul, 2018; Arslan & Gürlen, 2019; Butakin & Özgen, 2007). In this context, new research can contribute to the field. In summary, as teachers' experience increases, their curriculum fidelity decreases. This may be a result of that experienced teachers need less guidance from the curriculum; when their experience increases, they are more practical in planning and implementing, and they form this in their own mental systematics (Superfine, 2008), or it may be the result of professional wear and burnout. Teachers' innovative attitudes are among the most common expectations. For this reason, examining the concept of curriculum literacy in many contexts, especially in studies with experienced teachers, will contribute to the field because the concept of curriculum fidelity does not mean a blind commitment. On the other hand, literacy is a skill that supports development and change. Finally, classes the teachers worked at did not affect their curriculum fidelity. Burul (2018) examined curriculum fidelity in terms of school climate and concluded that the fidelity of primary school teachers was higher than that of secondary school teachers.

A positive, moderately significant relationship was found between teachers' curriculum literacy and their fidelity to the curriculum. Curriculum literacy is a concept that will contribute to knowing all the components of the curriculum, the philosophies behind it, and the approaches it is designed for, as well as making it a practiced skill via the competence and self-confidence by this knowledge, and at the same time contributing to the development of the exact professional attitude. Besides, curriculum fidelity is not about putting it into practice by ignoring the context in which teaching takes place with a robotic sense of duty. On the contrary, it is the ability to keep the gap between the official program and the operational program putting the designed program into practice. Even if it is designed properly by curriculum development experts, interventions are made inevitably according to the conditions (Moon & Park, 2016). According to Scarino (2005), teachers should be aware of their theoretical knowledge to verify what they do and will do in practice. Therefore, the intervention by a curriculum literate teacher will be at a higher level of awareness, and this will not negatively affect the curriculum fidelity.

Although there are not many studies in the literature that deal with the concepts of curriculum fidelity and curriculum literacy together, it is seen in many studies that teacher characteristics are among the factors affecting curriculum fidelity (Bay, Kahramanoğlu, Döş & Turan-Özpolat, 2017; Bümen et al., 2014; Carroll, Wood, Booth, Rick & Balain, 2007; Dikbayır & Bümen, 2016; Dusenbury, Brannigan, et al., 2003). Furthermore, Yılmaz and Kahramanoğlu (2021) found that curriculum literacy had a moderate and positive significant relationship with curriculum fidelity. This study only determined the existence of a relationship between these two concepts. Similarly, some studies have been conducted in the international literature showing that as teachers' self-efficacy in teaching literacy increases, students' success increases (Poggio, 2012) and that teachers' own beliefs affect their curriculum fidelity (Davis, 2014). It has become a well-known fact that teachers' attitudes have an influence on curriculum fidelity (Cantrell, Almasi, Carter & Rintamaa, 2013; Durlak & DuPre, 2008). For developing this attitude positively, teachers need to be curriculum literate. The curriculum fidelity, when evaluated in terms of the benefit it provides to the students, students' attendance rate is higher, and the students have fewer disciplinary problems although academic success is not high in classes of teachers with high curriculum fidelity (Burke, Oats, Ringle, Fichtner & DelGaudio, 2011).

Curriculum is planned to meet educational needs (Fur, 2010). The relationship between the characteristics of teachers and the curriculum and the knowledge, skills, and attitudes of teachers about the curriculum affect the commitment to the curriculum (Ayers, 1992). Curriculum literacy consists of three main dimensions related to the elements of the curriculum (knowledge, skills, attitude) and four sub-dimensions (recognizing the curriculum, implementing the curriculum, querying the curriculum, and valuing the curriculum) (Aslan, 2018; Erdamar, 2020; Kahramanoğlu, 2019; Keskin, 2020; Yar-Yıldırım, 2018). Research (Dane & Schneider, 1998; Dusenbury, Brannigan, et al., 2003; Fullan & Pomfret, 1977) points to the importance of commitment to the curriculum to understand the effectiveness of the curriculum. In addition, the concept of commitment to the curriculum guides the measurement of the harmony between the planned curriculum and the implemented curriculum (Marsh & Willis, 2007).

- Curriculum literacy can be studied in depth with its main and sub-dimensions.
- Reading and writing dimensions of curriculum literacy can be examined by associating them with cognitive taxonomy steps.
- In pre-service and in-service trainings of teachers, content related to the concepts of program literacy and program commitment can be added, various trainings can be given, and practices can be made.
- The effects of teachers' being literate in the curriculum and their commitment to the curriculum on the learning-teaching process can be investigated in many ways.
- The relationship between variables affecting teachers' commitment to the curriculum and curriculum literacy can be addressed from the perspective of all stakeholders.
- Investigation of teachers' curriculum literacy and commitment to the curriculum and effective variables can set an example for new studies and contribute to the literature.

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