

THE PREDICTIVE POWER OF THE CURRICULUM LITERACY LEVELS OF PRE-SERVICE TEACHERS UPON THEIR COMPETENCIES IN LESSON PLANNING

***Serhat SÜRAL**

Department of Curriculum and Instruction,
Pamukkale University, Denizli, Turkey
**serhatsural@gmail.com*

Nurhak Cem DEDEBALI

Department of Child Development,
İzmir Katip Celebi University, İzmir, Turkey

ABSTRACT

The objective of the study is to determine pre-service teachers' curriculum literacy levels and competences in lesson planning, thereby determining the relation between the two variables. The research model was designed as quantitative one and general screening model was employed. A total of 1051 students enrolled in the Classroom Education, Preschool Education, Science Education and Social Studies Education Departments of Pamukkale University and Akdeniz University in the 2018-2019 academic year participated in the study. In the study, "The Curriculum Literacy Scale" developed by Bolat (2017) and "The Competency Scale for Lesson Planning" developed by Author (2019) were utilized. Findings revealed that the variables identified in the study had significant effects on pre-service teachers' curriculum literacy levels and competencies in lesson planning. In addition to that, the mean of items measuring pre-service teachers' levels of curriculum literacy and competencies in lesson planning were examined and levels of "frequency" and "agree" were determined. Ultimately, correlation analysis was performed between the two dependent variables and positive relationships were identified at high levels. The predictive power of the curriculum literacy levels of pre-service teachers upon their competencies in lesson planning was also analyzed. The two variables together explain 23% of the variance in pre-service teachers' competencies in lesson planning.

Keywords: *Curriculum Literacy, Lesson Plan, Pre-Service Teacher*

INTRODUCTION

Only individuals who receive a high-quality and effective educational experience can promote economic, social, cultural, and technological development of the society they live in. It is seen that education systems in developed countries are a role model for many countries including especially developing countries. The reason for this is because these developed countries have a well-designed curriculum and qualified teachers. Not surprisingly, a qualified and an effective education system depends on a well-structured cooperation between teacher training system and school curriculum. As noted by Aslan and Gurlen, since education facilitates us to easily adapt to changes, both the curricula and teachers should also keep up with the change, adapt and improve themselves. Therefore, teachers bear a set of responsibilities. These are improving oneself, having a grasp of curriculum knowledge, and understanding, planning, and implementing the curriculum.

A curriculum is an officially approved technical document that is used to convey the knowledge, regarded most valuable by society, to children, and that reflects the broad social and social consensus, and that with policy statement. In addition to learning and teaching experiences that consider the meets of individuals and allow them to acquire desired behaviors, the cultural, political, social, philosophical, economic, religious, ideological expectations of society are inherent in the curriculum as well (Ertürk, 1979; Demirel, 2007; Varış, 1996; Olivia, 2009; Sarigöz, 2016; Ornstein & Hunkins, 2016). Whether we consider curriculum narrowly, as subjects taught in schools, or broadly, as experiences that individuals require for full participation in society, there is no denying that curriculum affects educators, students, and other members of society (Ornstein & Hunkins, 2014).

The curriculum serves as a primary educational guide organizing educational activities. Teachers or pre-service teachers are basically expected to be equipped with curriculum literacy skills. In this respect, education systems should help pre-service teachers improve their curriculum literacy skills. Pre-service teachers should also have the knowledge of the dimensions of the curriculum so that they can develop curriculum literacy (Bolat, 2017).

Within the framework of the teaching training system, concepts such as the curriculum, educational program, teaching program, lesson program are theoretically introduced to pre-service teachers through different courses. However, when teachers are asked to use their curriculum knowledge to design and implement a curriculum during the courses such as educational methodologies, educational technologies and material design and teaching practice, the results may not be favorable. Likewise, Arı (2010), Opoh and Awhen (2015) express that the success of curriculum depends on teachers' ability to implement the curriculum successfully and if the curriculum is not implemented properly, educational objectives cannot be achieved.

Planned curriculum refer to the goals and activities and the enacted curriculum refers to what actually takes place in the classroom (Gehrke, Knapp, & Sirotnik, 1992). Undoubtedly, a teacher who can read an appropriately designed properly will thus effectively use the planned curriculum in practice. Ercoşkun, Nalçacı, and Kılıç (2004) assert that encouraging teacher to think about what should be done and why and how should be done during planning educational activities and teaching strategies and education and teaching process will increase teachers' effectiveness. Considering students' needs and interests when designing a curriculum will help teachers realize education and teaching successfully.

Several previous studies touched upon the importance and effect of the lesson plan and planning on teachers' approaches to teaching. In the context of teaching programs, it can be argued that pre-service teachers who attend classroom practices rather than theory-driven endeavors will also promote their improvement since they have the opportunity to use their knowledge and skills (Beeth & Adadan, 2006; Goodlad, 1991; Meade & Smith, 1991; Peker, 2009; Roth & Tobin, 2001; Sachs, 1997; Sumpter, 1995; Tigchelaar & Korthagen, 2004).

Pre-service teachers mostly acquire curriculum knowledge attending the following courses: teaching principles and methods; early reading and writing. Field courses such as social science education, mathematics education also improve pre-service teachers' curriculum knowledge. Although the course of curriculum development is elective in many teacher education undergraduate programs, it is not compulsory in many departments. Yet, bearing in mind that pre-service teachers will be main curriculum implementers in their professional lives, their curriculum knowledge is of the utmost importance (Tunçer, 2019). Besides, curriculum literacy is a concept that contributes to achieve the expected goals in education. To ensure high levels of curriculum literacy, an individual is at least expected to familiar with curriculum development approaches and related factors as well as applying the curriculum appropriately. (Ariav, 1991). As previously mentioned, a teacher who can read a well-designed curriculum properly will thus effectively use the planned curriculum in practice. Therefore, the present study is of high importance. With this in mind, the objective of the study is to identify the predictive power of the pre-service teachers studying at education faculties in the 2019-2020 academic year upon their competencies in lesson planning. For this purpose, answers to the following sub-problems were sought:

- 1) What is the pre-service teachers’ curriculum literacy levels and competency in lesson planning?
- 2) Do the pre-service teachers’ curriculum literacy levels and competencies in lesson planning significantly vary according to department and grade level variables?
- 3) Is there a relation between exists between the pre-service teachers’ curriculum literacy levels and competencies in lesson planning?
- 4) What is the predictive level of the pre-service teachers’ curriculum literacy levels upon their competencies in lesson planning?

METHODOLOGY

This section provides methodological aspects of the study. In this respect, the research model, the study population and the sample size, the validity and reliability study of data collection instruments and other tests used for data analysis are presented.

Research Design

The research model was designed as quantitative one and general screening model was employed. For this purpose, “Relational Screening Model” was utilized. The relational survey models are research models which aim to determine the presence and the level of change variance between two or more variables (Gay, 1987; Gall & Borg, 1999).

Population and Sample Size

The research population consisted of 3rd and senior students enrolled in the Classroom Education, Preschool Education, Science Education and Social Studies Education Departments of two in the 2018-2019 academic year.

It is important to note that equal numbers of students were included to the study as much as possible to ensure the reliability of the study. For this purpose, the study population was limited to the students of the aforementioned four departments. Additionally, the 3rd and senior who attended or are attending the course of lesson planning were chosen hoping that the validity of students’ response to scale items would be higher.

Table 1
Frequency Distribution of the Sampling Group Regarding the Variables Identified

Variable	GROUPS	UNIVERSITY		TOTAL
		Pamukkale University	Akdeniz University	
Department	Classroom Education	146	193	339
	Preschool Education	94	132	226
	Social Studies Education	107	113	220
	Science Education	144	122	266
Grade Level	3 rd Grade	214	209	423
	Senior Grade	277	351	628
TOTAL		491	560	1051

In the study, disproportional sampling was applied to the two universities. While the study population consists of 4134 people, the sampling size (Balci, 1995, p.111) was found at least 351 people. Yet, the number of the samples was increased to reach more reliable results and accordingly the data was collected from 1051 people.

Data Collection Instruments

In efforts to accomplish the goal of the study, "The Curriculum Literacy Scale" developed by Bolat (2017) and "The Competency Scale for Lesson Planning" developed by Author (2019) were employed.

The Scale developed by Author (2019) concentrates on identifying teachers' or pre-service teachers' competencies in lesson planning. The original pool of 34 items in the scale was reduced to a 23-item scale as a result of a series of reliability and validity analyses performed. Subsequently, the scale was found to have two sub-dimensions, namely, "theoretical" and "practice". According to the reliability analysis of the scale, Cronbach Alpha's value was found to be .78 (Author, 2019).

"The Curriculum Literacy Scale" developed by Bolat (2017) was used to determine pre-service teachers' curriculum literacy levels. The 29-item scale consisted of two factors, namely, reading (15 items) and writing (14 items). The overall internal consistency coefficient (Cronbach's Alpha) was determined to be 0.94.

Table 2
Reliability Coefficients of the Measurement Scales

Scales	Reliability Coefficient	Item Number
The Competency Scale for Lesson Planning (2019)	.811	23
The Curriculum Literacy Scale (2017)	.796	29
Sub-dimensions of the Competency Scale for Lesson Planning		
Theoretical Competency	.758	11
Practical Competency	.763	12
Sub-dimensions of the Curriculum Literacy Scale		
Reading	.787	15
Writing	.772	14

Much of the literature on reliability is originally based on psychological test, which reliability coefficient of .70 or higher is considered "acceptable" for the reliability of test scores (Tezbaşaran, 1996; Büyüköztürk, 2006). We can thus contend that the scale is reliable and the two scales have higher reliability coefficients. In addition to that given reliability coefficients in the context of sub-dimensions of the scales, sufficiently reliable coefficients were detected within the sample group.

Data Analysis

This study intends to identify pre-service teachers' curriculum literacy levels and competencies in lesson planning. With this notion in mind, the Kolmogorov-Smirnov test was conducted to evaluate the normality of the variables. Upon an analysis of distribution of the research variables, potential parametric or non-parametric tests were determined. Furthermore, correlation analysis was performed to figure out the relationship between the two variables. Multiple regression analysis was administered to determine predictive power of the pre-service teachers' curriculum literacy levels upon their competencies in lesson planning lastly, alongside descriptive statistics, arithmetic mean and standard deviation were used to identify the pre-service teachers' curriculum literacy levels and competencies in lesson planning.

FINDINGS

This section involves a series of analyses conducted to seek answers to the sub-problems posed in the study along with research findings.

The Pre-service Teachers' Levels of Curriculum Literacy and Competency in Lesson Planning

The first sub-problem of the study seeks to identify sampled pre-service teachers' levels of curriculum literacy and competency in lesson planning. To this end, arithmetic mean and standard deviation of the scale items were calculated.

Table 3
Curriculum Literacy Levels of the Sample Group

No	N	X _{ort}	Ss	Level of Agree	No	N	X _{ort}	Ss	Level of Agree
I13	1051	4.33	.745	Strongly Agree	I22	1051	3.87	.730	Agree
I25	1051	4.30	.787	Strongly Agree	I28	1051	3.86	.807	Agree
I20	1051	4.27	.814	Strongly Agree	I14	1051	3.83	.627	Agree
I3	1051	4.23	.736	Strongly Agree	I5	1051	3.82	.762	Agree
I29	1051	4.18	.689	Agree	I10	1051	3.82	.704	Agree
I12	1051	4.14	.711	Agree	I11	1051	3.82	.638	Agree
I2	1051	4.11	.802	Agree	I6	1051	3.80	.832	Agree
I4	1051	4.09	.596	Agree	I24	1051	3.78	.736	Agree
I23	1051	4.04	.756	Agree	I17	1051	3.76	.771	Agree
I21	1051	4.01	.793	Agree	I26	1051	3.76	.697	Agree
I16	1051	4.01	.639	Agree	I27	1051	3.74	.798	Agree
I9	1051	4.00	.602	Agree	I1	1051	3.73	.666	Agree
I15	1051	3.96	.687	Agree	I19	1051	3.70	.705	Agree
I18	1051	3.95	.709	Agree	I7	1051	3.70	.780	Agree
I8	1051	3.91	.830	Agree					

Basing on the data shown in Table 3, the results indicated that 13th, 25th, 20th and 3rd items out of the total 29 item-scale demonstrated frequency at the level of "Strongly Agree", while other items had the average scores at the level of "Agree". Given the highest mean rank with regard to the Likert-scale can be at the level of 5.00, the highest mean was found to be 4.33. While the 13th item, the highest mean scores given by pre-service teachers, is "I can choose the appropriate course material", the 7th item, the lowest mean, is "I can identify the limits of objectives." Given that the range between the highest mean and the lowest mean of the 29-item scale is 0.63, we can contend that the agree levels of pre-service teachers among the items are almost equal to each other.

Table 4
Lesson Planning Competency Levels of the Sample Group

No	N	X _{ort}	Ss	Agree Level	No	N	X _{ort}	Ss	Agree Level
I17	1051	4.66	.857	Strongly Agree	I4	1051	4.21	.457	Strongly Agree
I8	1051	4.62	.458	Strongly Agree	I18	1051	4.19	.687	Agree
I10	1051	4.59	.696	Strongly Agree	I12	1051	4.16	.714	Agree
I1	1051	4.57	.866	Strongly Agree	I7	1051	4.13	.552	Agree
I16	1051	4.51	.785	Strongly Agree	I13	1051	4.12	.611	Agree
I22	1051	4.47	.869	Strongly Agree	I15	1051	4.11	.401	Agree
I14	1051	4.46	.558	Strongly Agree	I20	1051	4.07	.763	Agree
I9	1051	4.42	.603	Strongly Agree	I21	1051	4.05	.825	Agree
I5	1051	4.38	.801	Strongly Agree					
I19	1051	4.36	.771	Strongly Agree					
I2	1051	4.35	.805	Strongly Agree					
I3	1051	4.35	.965	Strongly Agree					
I23	1051	4.30	.635	Strongly Agree					
I11	1051	4.26	.410	Strongly Agree					
I6	1051	4.23	.509	Strongly Agree					

As seen in Table 4, the pre-service teachers responded to 16 items out of 23 items as “Strongly Agree”, whereas they responded to the remaining 7 items as “Agree”. When compared to the item scores in the curriculum literacy scale, the results indicate that pre-service teachers recorded higher scores regarding the items in the competency scale for lesson planning. Given that the range between the highest mean and the lowest mean is .61, it is quite interesting that pre-service teachers’ range of scores were found to be similar in the two scales.

The Significance Levels of the Pre-service Teachers’ Curriculum Literacy and Competencies in Lesson Planning Regarding the Department and Grade Level Variables

The second sub-problem of the study investigates whether the pre-service teachers’ levels of curriculum literacy and competency in lesson planning significantly vary according to department and grade level variables. Thus, the normality test was administrated to the two variables in terms of their levels of curriculum literacy and competency in lesson planning.

Table 5
The Kolmogorov-Smirnov Test Administrated to the Variables Identified

	Normality Test		
	Statistic	Degree of Freedom	Level of Significance
Department	.411	1051	.000
Grade Level	.356	1051	.000

Kolmogorov-Smirnov (K-S) test is used to determine whether sample data is normally distributed. If the test indicates normality, parametric tests are performed, otherwise non-parametric tests are used. Non-parametric test is used when “p” value is significant at 0.05. If the significance level is $p < 0.05$, then parametric test is employed (Can, 2014, p.89). To that end, Kolmogorov-Smirnov test was run. Since the mean difference was significant at the .05 level. According to all identified variables, non-parametric tests were utilized. Consequentially, Kruskal Wallis test was administrated to both variables to find out any significant difference.

Table 6
The Significance Levels of the Pre-service Teachers’ Curriculum Literacy and Competencies in Lesson Planning Regarding the Department Variable

	Sub-dimensions	Departments	N	Mean Ranks	χ^2	df	p			
Curriculum Literacy	Reading	Classroom Education	339	511.23	1.969	4	.012*			
		Preschool Education	226	507.55						
		Social Studies Education	220	513.55						
	Writing	Science Education	266	505.96						
		Classroom Education	339	502.66						
		Preschool Education	226	499.47						
Level of Competency in Lesson Planning	Theoretical	Social Studies Education	220	507.14	2.369	4	.112			
		Science Education	266	503.41						
		Classroom Education	339	478.57						
	Practical	Preschool Education	226	488.56				3.141	3	.006*
		Social Studies Education	220	482.01						
		Science Education	266	480.33						
	Classroom Education	339	489.74	2.885	3	.078				
	Preschool Education	226	482.55							
	Social Studies Education	220	485.41							
	Science Education	266	479.50							

* The significance level is taken as $p < 0.05$

The second sub-problem of the study examined whether the pre-service teachers' curriculum literacy levels and competency in lesson planning significantly differed by the variables of department and grade level. With this in mind, Kruskal Wallis analysis was conducted regarding the department variable. The results were tabulated in Table 6.

As can be understood from the Table 6, the scales measuring the two dependent variables consist of two sub-dimensions. In this respect, a significant difference was identified in the sub-dimension of reading with respect to the curriculum literacy level, whereas no significant difference was observed in the sub-dimension of theoretical competence pertaining to lesson planning competency. In light of the data obtained, the department variable had a significant effect on the pre-service teachers' curriculum literacy levels in terms of the sub-dimension of reading ($\chi^2=1.969$; $df:4$; $p=.012$), the same variable had a significant effect on pre-service teachers' competencies in lesson planning in terms of the sub-dimension of theoretical competence ($\chi^2=3.141$; $df:3$; $p=.006$).

Therefore, Dunnett-C analysis was performed to see which variable groups significantly differed with each other and multiple comparisons were run. Dunnett-C multiple comparison test, which can be used for non-parametric variables or when the variances are not equal, is based on average mean rank and q-distribution. (Günlü, 2016).

Table 7
Dunnett-C Test Administered to the "Department" Variable

	CURRICULUM LITERACY "READING"				LEVEL OF COMPETENCY IN LESSON PLANNING "THEORETICAL"			
	Classroom Education	Preschool Education	Social Studies Education	Science Education	Classroom Education	Preschool Education	Social Studies Education	Science Education
Classroom Education Preschool Education			*					*
Social Studies Education	*							
Science Education					*			

The data obtained from Dunnett- C analysis reveals that there is a significant result between classroom education and Social Studies education in terms of the "reading" sub-dimension of the curriculum literacy. As for the "theoretical" sub-dimension of the lesson planning competency, a meaningful difference was identified between classroom education and science education. The mean ranks of the groups that are significantly different from each other are given in Table 8.

Table 8
The results of Mann Whitney U Test Adminstrated to the Groups within "Department" Variable

	Departments	N	Mean Rank	Sum of Ranks	U	Z	p
Curriculum Literacy "Reading"	Classroom Education	339	511.23	4.895	569.500	-1.425	.015
	Social Science Education	220	513.55	4.747			
A level of competency in lesson planning "Theoretical"	Classroom Education	339	478.57	5.011	599.500	-1.336	.004
	Science Education	266	480.33	5.231			

*The significance level is taken as $p < 0.05$

Basing on the results given in Table 8, it is seen that pre-service social studies teachers had higher mean ranks (513.55 (U: 569.500; Z:-1.425)) than pre-service classroom teachers (511.23 (U: 569.500; Z:-1.425)) with respect to the "reading" sub-dimension of the curriculum literacy. Pre-service science teachers, on the other hand, had higher mean ranks (480.33 (U: 599.500; Z:-1.336)) than pre-service classroom teachers (478.57 (U: 599.500; Z:-1.336)) with respect to the "theoretical" sub-dimension of the lesson planning competency.

Table 9
The Significance Levels of the Pre-service Teachers' Curriculum Literacy and Competencies in Lesson Planning Regarding the Grade Level Variable

	Sub-dimensions	Grade Level	N	Mean Rank	Sum Total	U	Z	p
Curriculum Literacy	Reading	3rd Grade	423	488.54	3.478	603.500	-2.147	.011*
		Senior Grade	628	482.66	3.665			
	Writing	3rd Grade	423	478.57	4.857	601.500	-2.587	.000*
		Senior Grade	628	480.33	4.787			
A level of competency in lesson planning "Theoretical"	Theoretical	3rd Grade	423	479.55	3.658	588.500	-1.568	.024*
		Senior Grade	628	471.63	3.996			
	Practical	3rd Grade	423	482.40	3.475	593.000	-1.785	.047*
		Senior Grade	628	486.74	3.587			

*The significance level is taken as $p < 0.05$

Another variable in the second sub-problem of the study is the grade level of the pre-service teachers. Similarly, the study investigated whether the grade level had an effect on curriculum literacy levels of pre-service teachers and their competencies in lesson planning. Since there were two groups in the variable, Mann Whitnet U non-parametric test was run.

Given the data shown in Table 9, the grade level variable had a significant effect on all sub-dimensions of both curriculum literacy and lesson planning competency. In terms of curriculum literacy levels, the mean rank (488.54) of the 3rd grade (U:603.500; Z:-2.147; $p < 0.11$) as to the sub-dimension of reading is higher than the mean rank(482.66) of the senior grade pre-service teachers(U:603.500; Z:-2.147; $p < 0.11$), whereas the mean rank (480.33) of the senior grade pre-service teachers (U:601.500, Z:-2.587, $p < .000$) as to the sub-dimension of writing is higher than the mean rank (478.57) of the 3rd grade pre-service teachers(U:601.500, Z:-2.587, $p < .000$) (478.57).

As for lesson planning competency, the variable of grade level similarly had a significant effect on pre-service teachers' theoretical and practical competencies. While the mean rank of the 3rd grade (U: 588.500, Z:-1.568, $p < 0.24$) as to the theoretical sub-dimension is higher than the mean rank of the senior grade pre-service teachers (U: 588.500, Z:-1.568, $p < 0.24$), it is opposite in the sub-dimension of practical competency. Correspondingly, the mean rank of the senior grade (U: 593.000, Z:-1.785, $p < 0.47$) is higher than the mean rank of the 3rd grade pre-service teachers (U: 593.000, Z:-1.785, $p < 0.47$).

The Relationship between Pre-service Teachers’ Curriculum Literacy Levels and their Competency in Lesson Planning

When it comes to the third sub-problem of the study, it is intended to identify the relationship between the two dependent variables, namely, pre-service teachers’ levels of competency in lesson planning and their curriculum literacy levels. The result of the K-S test denoted that the p-value was higher than 0.5 and the two variables were normally distributed. This result implies that Pearson correlation between variables can be performed in the context of correlation (Can, 2014).

Table 10
The Correlation between Lesson Planning Competencies and Curriculum Literacy Levels

Scales	1	2	3	4	5	6
1. Lesson Planning Competency	-					
2. Theoretical	,75**	-				
3. Practical	,79**	,75**	-			
4. Curriculum Literacy	,74**	,70**	,68**	-		
5. Reading	,68**	,72**	,65**	,59**	-	
6. Writing	,74**	,65**	,70**	,55**	,52**	-

N=1051, **p<0.01

The correlation coefficient of +1.00 indicates a perfect positive correlation and coefficient of -1.00 indicates a perfect negative. A correlation of .00 indicates that there is no relationship between the two variables. In term of interpreting the size of correlation coefficient, we do not see common ranges, yet it should be considered that following ranges can be often used to interpret the correlation. If correlation coefficient as absolute value is between 0.70-1.00, it means high; if it is between 0.70- 0.30, it means medium; if it is between 0.30-0.00, it means low level relation (Büyüköztürk, 2006).

As a result of the correlation analysis conducted, the relationship between the pre-service teachers’ levels of competency in lesson planning and their curriculum literacy levels were investigated one by one in terms of the sub-dimensions and the findings are shown in Table 10. According to the findings obtained, a correlation value above the value of .700 meaning high level positive relationship was individually observed with respect to the levels of competency in lesson planning and curriculum literacy. In other words, a high level of relationship was detected between the pre-service teachers’ levels of competency in lesson planning and their curriculum literacy levels. In a broad sense, medium and high-level positive correlation values were identified.

While the highest positive correlation relationship was observed between the total scores of the levels of competency in lesson planning and the sub-dimension of “practical” competency with the value of .79, all correlation coefficients indicate meaningful difference at the level of .001, which proves the relationships identified.

The Predictive Power of the Pre-service Teachers’ Curriculum Literacy Levels on their competency in Lesson Planning

Since the correlation between the groups in the independent (predictive) variable should not be as high as 0.80 - 0.90 (Can, 2014, p.280; Büyüköztürk, 2010, p.100), we could contend that the multiple regression can be performed according to the data given in Table 10.

Table 11
Skewness and Kurtosis Coefficients of Sub-dimensions of Curriculum Literacy

		READING	WRITING
N	Valid	1051	1051
	Missing	0	0
Mean		47.25	52.33
Median		45.00	51.70
Mode		46.30	50.08
Skewness		-.336	-.498
Std. Error of Skewness		.077	.079
Kurtosis		.201	.352
Std. Error of Kurtosis		.188	.194

Analysis of the data in table 10 shows that there is a positive relationship between the pre-service teachers' competencies in lesson planning and curriculum literacy levels. In the meanwhile, skewness, and kurtosis values of sub-dimensions of the level of competency in lesson planning — the independent variable used in sub-problem — range between -1,96 and +1,96 as seen in Table 11. Can (2014, p.85) expresses that as widely accepted norm, if you divide each value of skewness and kurtosis by their standard errors and the results is between -1.96 and +1.96, it means your data set is normally distributed.

Table 12
The Effect of the Curriculum Literacy Levels of Pre-service Teachers on their Level of Competency in Lesson Planning (Multiple Regression Analysis)

Independent Variable	B	Standard Error	β	t	p	Pairwise r	Partial r
Reading	0.811	0.141	0.265	7.120	.000	0.477	0.320
Writing	0.615	0.132	0.259	6.556	.000	0.511	0.241
Fixed	51.714	2.995	-	13.689	.000	-	-
R= .485		R ² =.235					
F(2 - 888)=119.585		P=0,000					

As a result of multiple linear regression analysis performed to determine how the sub-dimension of the curriculum literacy such as reading and writing which was considered to have an effect on lesson planning competency levels predict the levels of competency in lesson planning, it is found out that there is a meaningful difference (R=0.485, R²=0.235) between the sub-dimensions of curriculum literacy levels and curriculum literacy levels (F (2-888) =119.58, p<0.05). The two variables together explain 23 % of the variance in the level of competency in lesson planning.

Based on the analysis of standardized coefficients, the relative importance of the predictive lesson planning competency levels is reading (β = 0.265) and writing (β =0.259). Given the significance tests of regression coefficients (p<0.05), it is found that they significantly predict pre-service teachers' level of competency in lesson planning.

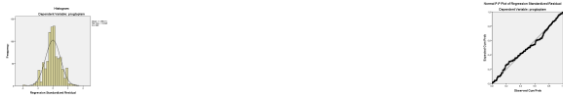


Figure 1. The Graph of the Multiple Regression Analysis

DISCUSSION

While curriculum is a guide for countries' educational objectives, it plays a significant role in designing a well-planned and desired education system in countries. It is a well-known fact that policy makers reflect their objectives into curriculum so that they can raise a manpower desired. (Oliva, 2009). Ornstein and Hunkins (2014) argued that curriculum developers mostly had problems with combining theory with practice and curricula were mostly theoretical, yet they also pointed out that practitioners ignored the theoretical dimension of the curriculum because they attached more importance to practice. As a result, this situation creates an important gap between the objectives of the curriculum and the enacted curriculum in learning and teaching environments. It is thus of vital importance that teachers who will implement the curriculum should have the ability to make sense of curriculum as well as having the ability to appropriately design curriculum-based learning process for students.

According to the present study, which seeks to identify pre-service teachers' curriculum literacy levels and lesson planning competencies, the results indicate that the pre-service teachers have high curriculum literacy levels. Previous studies using different sample group also resulted in higher level of curriculum literacy among pre-service teachers (Aslan & Gürlen, 2019; Erem & Eđmir, 2018; Author, 2018). In other words, the present study confirms the results of previous studies. We can there imply that pre-service teachers who showed higher level of curriculum literacy will have the essential competences they require in order to use curriculum efficiently when they start teaching in the future in Turkey.

In this sense, the perceptions of teachers as implementers of curriculum, their levels of knowledge and attitudes towards the curriculum and their level of skills and competencies when turning the theory into practice are amongst the problematic areas and the concept of curriculum literacy makes this problem more understandable and measurable. (Akinođlu & Dođan, 2012). Therefore, it is a favorable outcome for the Turkish education system given that teachers and sampled pre-service teachers as curriculum implementers demonstrated higher level of competency in transforming and implementing the curriculum. Accordingly, the study attempted to identify pre-service teachers' lesson planning competency levels in order to correlate it with curriculum literacy. When compared to sampled pre-service teachers' scores with respect to the items in the curriculum literacy levels scale, it is seen that they recorded higher scores on the lesson planning scale. Given some other studies in the literature arguing that teachers mostly ground on curriculum while planning lesson, this might explain why teachers have higher level of competency in lesson planning (Eskiocak, 2005; Superfine, 2008).

Second, the study analyzed whether the curriculum literacy levels of the pre-service teachers significantly differed by the variable of department. Correspondingly, significant difference was identified in the sub-dimension of reading in favor of pre-service social studies teachers. Similarly, in their work on the identification of pre-service teachers' curriculum literacy levels, Erem and Eđmir (2018) also

found out a significant difference in favor of the pre-service social studies teachers. This result supports the present research findings. The curriculum literacy awareness might be created because the course of curriculum development in teaching is one of the compulsory courses for the social studies program at the level of bachelor's degree. In addition to that, significant difference was found in the theoretical sub-dimension of the lesson planning competency in favor of the pre-service science teachers. The reason for low levels of significant differences might be because of personal interests of pre-service science teachers and the implicit atmosphere adopted by the department.

Based upon the research findings, it is seen that the grade level is an effective variable only on the "reading" sub-dimension of the 3rd grade pre-service teachers' curriculum literacy levels. Significant difference was also identified in favor of senior pre-service teachers regarding their "writing" sub-dimension of the curriculum literacy. Likewise, significant difference was observed in favor of 3rd grade pre-service teachers with respect to their "theoretical" dimension of lesson planning competency. Significant differences were also found with senior pre-service teachers' lesson planning competency in terms of the sub-dimension of "practical" competency. This might be because senior pre-service teachers attend teaching practice and implementation courses, thereby equipping with theoretical and practical gains. According to Erdem and Egmir (2018), students who have not the opportunity to practice their lesson planning skills towards any gains they identify in the curriculum eventually cannot develop their competences except than sharing opinions about the curriculum in a theoretical sense. Individuals who are encouraged to put theory into practice and learn by doing and experiencing will achieve more permanent learning. Further, pre-service teachers, in particular, will experience a huge boost of confidence. In his work on pre-service teachers, Sag (2010) revealed that the pre-service teachers in the experimental group who were trained based on real-life educational activities demonstrated higher level of self-confidence when compared to the pre-service teachers in the control group.

In view of the data taken from pre-service teachers, high level of relationship was individually observed within curriculum literacy and lesson planning competency. Similarly, high level of relationship was detected within the competency in lesson planning. In addition to that, high level of relationship was identified between the curriculum literacy levels of pre-service teachers and their competencies in lesson planning. Given the relationship between the two variables, it is observable that there is a high positive correlation value at the level of .70. It is therefore understood that as the curriculum literacy levels of pre-service teachers increase, their competency in lesson planning increase as well.

As a result of the multiple regression analysis which was performed to how the sub-dimension of the curriculum literacy such as reading and writing which are considered to have an effect on lesson planning competency of pre-service teachers predict pre-service teachers' lesson planning competencies, significant relationship between sub-dimensions of curriculum literacy level and lesson planning competency was identified. As a result, the curriculum literacy scores of pre-service teachers explain 23% of their lesson planning competencies.

CONCLUSION AND IMPLICATIONS

The present study, which aims to identify the curriculum literacy levels and lesson planning competency levels of the pre-service teachers, dwells upon two concepts with respect to the making sense of curriculum, implementing it, and discussing the results. In this respect, the fact that curriculum literacy and lesson planning competencies which are one of the core areas that the teachers need in the phase of lesson planning are the main focus of the study is of utmost importance for the literature. Specifically, various scales for curriculum literacy and lesson planning processes should be developed and there is a need for more comprehensive studies.

It is important to note that the scale used functions as a self-assessment scale in terms of interpreting the results of such studies designed with general screening model. Students are generally more inclined to give higher score when they evaluate their own skills. Moderate or low level of relationship were observed between students' actual scores and the scores based on their evaluation of self-performance (Dunning, Heath, and Suls, 2004). To conclude, further studies on pre-service teachers or teachers are

needed to reach performance indicators that can determine the real competencies in the curriculum literacy and new studies based on qualitative data should be conducted to provide an in-depth examination.

REFERENCES

- Akinoğlu, O., & Dogan, S. (2012). Eğitimde program geliştirme alanına yeni bir kavram önerisi: Program okuryazarlığı [A new concept in the field of program development in education: Program literacy]. *International Congress of Educational Sciences*, 21, 12-14.
- Ariav, T. (1991). Growth in teachers' curriculum knowledge through the process of curriculum analysis. *Journal of Curriculum and Supervision*, 6(3), 183-200.
- Aslan, G., & Gurlen, E. (2018). Ortaokul Öğretmenlerinin Program Okuryazarlık Düzeyleri [Program literacy levels of secondary school teachers]. *Journal of Ahi Evran University Kırşehir Faculty of Education*, 20(1), 170-186.
- Balci, A. (1995). *Sosyal bilimlerde araştırma yöntem, teknik ve ilkeler* [Research methods, techniques and principles in social sciences]. Pegem Yayıncılık.
- Beeth, M. E., & Adadan, E. (2006). The influences of university-based coursework on field experience. *Journal of Science Teacher Education*, 17(2), 103-120.
- Bolat, Y. (2017). Eğitim programı okuryazarlığı kavramı ve eğitim programı okuryazarlığı ölçeği [Concept of curriculum literacy and curriculum literacy scale]. *Electronic Turkish Studies*, 12, 18.
- Demirel, Ö. (2007). *Kuramdan Uygulamaya Eğitimde Program Geliştirme* [Program Development in Education from Theory to Practice]. (10. Baskı). Pegem Yayıncılık.
- Dunning, D., Heath, C., & Suls, M. (2004). Flawed Self-assessment: Implications for Health, Education and Workplace. *Psychol Sci Public Interest*, 5(3), 69-106.
- Erdem, C., & Eğmir, E. (2018). Öğretmen adaylarının eğitim programı okuryazarlığı düzeyleri [Education program literacy levels of prospective teachers]. *Afyon Kocatepe University Journal of Social Sciences*, 20(2), 123-138.
- Ertürk, S. (1979). Eğitimde program geliştirme [Curriculum development in education]. Yelkenetepe.
- Eskiocak, S. (2005). *Sınıf öğretmenlerinin öğretimi planlama aşamasında karar verme sürecine etki eden etmenlerin analizi* [Analysis of the factors that affect the decision making process of teaching class teachers in the planning stage]. [Unpublished Master Thesis]. Çukurova University Institute of Social Sciences, Adana.
- Can, A. (2014). *SPSS ile bilimsel araştırma sürecinde nicel veri analizi* [Quantitative data analysis through scientific research with SPSS]. Pegem Akademi.
- Gehrke, N. J., Knapp, M. S., & Sirotnik, K. A. (1992). In search of the school curriculum. *Review of Research in Education*, 18(1), 51-110.
- Goodlad, J. I. (1991). Why we need a complete redesign of teacher education. *Educational leadership*, 49(3), 4-6.
- Hunkins, F. P., & Ornstein, A. C. (2016). *Curriculum: Foundations, principles, and issues*. Pearson Education.
- Meade, C. D., & Smith, C. F. (1991). Readability formulas: cautions and criteria. *Patient education and Counseling*, 17(2), 153-158.
- Oliva, P. F. (2009). *Developing the curriculum*. (7th Edition). Allyn and Bacon
- Opoh, O. E., & Awhen, F. (2015). Teachers perceived problems of curriculum implementation in tertiary institutions in cross river state of Nigeria. *Journal of Education and Practice*, 6(19), 145-151.
- Ornstein, A. C., & Hunkins, F. P. (2014). *Curriculum foundations, principles, and issues* (6th edition). Pearson.
- Peker, M. (2009). Pre-service teachers' teaching anxiety about mathematics and their learning styles. *Eurasia Journal of Mathematics, Science & Technology Education*, 5(4), 335-345.
- Roth, W. M., & Tobin, K. (2001). Learning to teach science as practice. *Teaching and Teacher Education*, 17(6), 741-762.
- Sachs, J. (1997). Reclaiming the agenda of teacher professionalism: An Australian experience. *Journal of Education for Teaching*, 23(3), 263-276.

- Sag, R. (2010). Etkinlik teorisine göre zenginleştirilmiş birleştirilmiş sınıflarda öğretim uygulamalarının adayların özyeterlik algılarına etkisi [The effects of teaching practices on the self-efficacy perceptions of the students in the combined classes enriched according to the activity theory]. *Education and Science, 35*(158), 44-57.
- Sarigoz, O. (2016). Anthropological attitudes and views of the teachers towards lifelong learning. *The Anthropologist, 24*(2), 598-610.
- Sumpter, R. D. (1995). Expanding field experiences: Reality, results, and revision. *The Teacher Educator, 30*(4), 6-15.
- Sunbul, A. M. (1996). Öğretmen niteliği ve öğretimdeki rolleri [Teacher quality and their role in teaching]. *Education Management in Theory and Practice, 8*, 597-607.
- Superfine, A. C. (2008). Planning for mathematics instruction: A model of experienced teachers' planning processes in the context of a reform mathematics curriculum. *The Mathematics Educator, 18*(2), 11-22.
- Tigchelaar, A., & Korthagen, F. (2004). Deepening the exchange of student teaching experiences: implications for the pedagogy of teacher education of recent insights into teacher behaviour. *Teaching and Teacher Education, 20*(7), 665-679.
- Variş, F. (1996). *Eğitimde Program Geliştirme* [Curriculum development in education]. Alkım Yayıncılık.