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Determining the information literacy skills of teacher candidates for the sustainability of quality in education

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Abstract

The aim of this study is to determine information literacy skills of teacher candidates. For collecting data “Information Literacy Survey” which was developed by Aldemir (2004) was used. In the analysis of the data, ANOVA test and t-test was used. At the end of the study results were discussed and the alternative ways were suggested.

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Keywords: Information literacy; sustainability; quality in education.

1. Introduction

While the importance of information is growing fast in our day, the concept of “information” and the approach to “science” are also changing rapidly. These changes bring about the formation of information societies. This process can be sped up giving individuals an education favouring and improving creativity and intellectual and research skills at every level with an approach based on “lifelong learning” at formal and non-formal educational institutions (Yetkin and Daşcan, 2006).

The term of “information literacy” was first defined in 1974 by Paul Zurkowski as “being able to apply information resources to one’s work”. (Saatçioğlu et al, 2003). Information literacy, which is the ability to find and use the needed information effectively, is the most important skill to build the learning society of the information age. Information literacy is the key to lifelong learning (Polat, 2005b) necessitated by the information age.

Acquiring information literacy skills at higher education is required by the fact that lifelong learning has become a must and the information widely used in teaching, training and research activities is steadily growing in electronic environments. Studies have shown that implementations of information literacy have been considerably improved at many universities in especially the developed countries. As it applies to all the people at the institutions (university administrations, lecturers, students, librarians etc.), it is necessary for the concept of information literacy to be properly understood and its importance should be emphasized. Education should be given introducing the

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implementations first, determining the problems arising in the processes, taking measures to address them and setting up projects (Saatçioğlu et al, 2003).

Sustainable quality education could be achieved attracting interest in the concept of sustainability and combining the best features of traditional education systems with new ideas and practices produced in consideration of local conditions (Hiebert, 2006). Information literacy, which makes significant contributions to lifelong learning and learning how to learn, is an important skill to be acquired during higher education. People who are information literate can recognize when information is needed and they can locate, evaluate and effectively use the needed information (Saatçioğlu et al, 2003). It is possible to mention that there is a parallelism between achieving sustainability in education and people's skills of finding information. When viewed from this aspect, it is highly important that teacher candidates have information literacy skills and teach their students about them. Accordingly, the primary aim of this study is to determine the information literacy levels of elementary school class teacher candidates. To do that, answers to the following questions were sought:

1. Does the education that teacher candidates receive have any effects on their information literacy levels?
2. Do the information literacy levels of teacher candidates differ in terms of gender?
3. Do the information literacy levels of teacher candidates differ in terms of the departments they study at?

2. Method

The sample consists of 180 first and fourth year students from Uludag University Education Faculty Class Teaching Department, Preschool Education Department and Science Teaching Department. The Information Literacy Questionnaire designed by Aldemir (2004) was used to determine the teacher candidates' information literacy levels. The responses were graded in terms of a 5-point Likert-Type scale in the following way: The reliability coefficient of the scale was found .89. During the data analysis, One Way ANOVA was used to see the differences between the departments and t test for independent samples was employed to determine the differences between the genders and years.

3. Findings and Comments

In this section, the data collected using the questionnaire are analysed. Firstly, it was found the averages of the responses the teacher candidates gave to the items and the effects of the years of study were examined to find out in what ways the genders and departments affected the averages. After that, making use of the studies in the literature, the items in the scale were considered in four groups as defining, finding, evaluating and communicating information. The averages were found for the scores obtained in each group. The differences between the averages in terms of the genders and years were determined with t test and those between the departments were found using variance analysis.

Table1. The Defining Statistical Results Regarding the Teacher Candidates' Levels of Information Literacy

Information Literacy	Departments	N	\bar{X}
Defining	Class Teaching	60	3,50
	Preschool Teaching	60	3,39
	Science Teaching	60	3,69
	Total	180	3,52
Finding	Class Teaching	60	3,78
	Preschool Teaching	60	3,53
	Science Teaching	60	3,68
	Total	180	3,66
Evaluating	Class Teaching	60	3,87
	Preschool Teaching	60	3,60
	Science Teaching	60	3,77
	Total	180	3,74
Communicating	Class Teaching	60	3,96
	Preschool Teaching	60	3,66
	Science Teaching	60	3,72
	Total	180	3,78
General	Class Teaching	60	3,80
	Preschool Teaching	60	3,56
	Science Teaching	60	3,71
	Total	180	3,69

Examining the teacher candidates' information literacy levels in general, it was found that the averages of the responses the class teacher, preschool teacher and science teacher candidates gave were 3.80, 3.56 and 3.71 respectively. The average of all the teacher trainers was 3.69. In terms of the subcategories of information literacy, the averages in regard to defining, access, evaluating and communicating information were 3.52, 3.66, 3.74 and 3.78 respectively. This shows that the average score of the teacher candidates is centred on the "I'm not sure" option, which points to the fact that they did not have detailed or accurate knowledge of the subject.

In his study done to analyse the information literacy of class teacher candidates, Başaran (2005) states that teacher candidates know how to seek, obtain, process and present information but they are not good enough at storing it and collecting information following procedures. Aldemir (2004) found that class teacher candidates are willing to be trained about information literacy. Polat (2005c) emphasizes that teaching about information literacy should be organized in compulsory courses to be taught in early years of school. In their study carried out to determine the relationship between teacher candidates' information literacy levels and their perception of self-sufficiency, Keskinlik et al (2007) found that teacher candidates need to know more about information literacy.

Table2. The Results of the t-Test Given According to the Years of Study to See How the Education Received Affects the Information Literacy Levels

Information Literacy Subcategories	Year	N	\bar{X}	ss	sd	t	p
Defining	1	90	3,46	,68	178	-1,367	,015*
	4	90	3,59	,54			
Finding	1	90	3,62	,66	178	-,987	,073
	4	90	3,71	,60			
Evaluating	1	90	3,75	,64	178	,015	,241
	4	90	3,74	,63			
Communicating	1	90	3,71	,67	178	-1,468	,001*
	4	90	3,84	,52			
Total	1	90	3,65	,54	178	-1,136	,071
	4	90	3,73	,50			

*p<.05

Table 2 suggests that there is not a significant difference between the teacher candidates' information literacy levels in total in terms of the years of study but there is one in favour of the fourth year students in terms of the subcategories of defining and communicating. This shows that fourth year teacher candidates have fewer

difficulties than first year students do in using the information literacy skills in terms of defining and communicating information. Teacher candidates are not offered any courses on information literacy throughout their undergraduate studies. However, the fact that the fourth year students were found to have fewer difficulties can be explained with the argument that they have partially developed their competence in finding and presenting information with the assignments they have done during their undergraduate studies. Aldemir (2004) found in his study done with the fourth year students of Sakarya University Education Faculty that they had deficiencies in information literacy skills and they were willing to be trained about it. Erdem et al (2008) found a significant difference in favour of the fourth year students in terms of self-sufficiency perception and they reported that it was a positive consequence of the experiences they had had during their undergraduate.

Table3. The Results of the t-Test on the Teacher Candidates' Information Literacy Levels in terms of the Genders

Information Literacy Subcategories	Gender	N	ss	sd	t	p	
Defining	Female	134	3,46	,65	178	-2,537	,001*
	Male	46	3,72	,45			
Finding	Female	134	3,61	,65	178	-1,881	,312
	Male	46	3,81	,54			
Evaluating	Female	134	3,72	,67	178	-,713	,015*
	Male	46	3,80	,49			
Communicating	Female	134	3,76	,59	178	-,773	,880
	Male	46	3,84	,64			
Total	Female	134	3,65	,53	178	-1,666	,117
	Male	46	3,80	,47			

*p<.05

It can be seen that there is no significant difference between the information literacy levels in total in terms of the genders but there is one in favour of the male teacher candidates regarding the subcategories of defining and evaluating information. This shows that male teacher candidates have fewer difficulties than female students do in using the information literacy skills of defining and evaluating information. In their study investigating the information literacy levels of university students, Akdağ and Karahan (2004) found that male students were more successful in information literacy than female students and reported that it could be because female students are generally more hesitant about using new technologies. However, Erdem et al (2008) found no difference in terms of the genders between teacher candidates' information literacy self-sufficiency perceptions.

Table4. The Results of the Variance Analysis on the Teacher Candidates' Information Literacy Levels in terms of the Departments

Information Subcategories	Literacy	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Defining		Within Groups	2,769	2	1,385	3,721	,026*	FÖ-OÖ
		Between Groups	65,869	177	,372			
		Total	68,639	179				
Finding		Within Groups	2,001	2	1,001	2,528	,083	
		Between Groups	70,059	177	,396			
		Total	72,060	179				
Evaluating		Within Groups	2,345	2	1,172	2,959	,054	
		Between Groups	70,139	177	,396			
		Total	72,484	179				
Communicating		Within Groups	3,096	2	1,548	4,299	,015*	SÖ-OÖ
		Between Groups	63,739	177	,360			
		Total	66,836	179				
Total		Within Groups	1,900	2	,950	3,569	,030*	SÖ-OÖ
		Between Groups	47,103	177	,266			
		Total	49,003	179				

*p<.05

Analysing the teacher candidates' information literacy levels in terms of their departments, it was found significant differences between the groups. According to the results of the Tukey Test given to find between which groups the differences between the departments were, the class teacher candidates' ($X=3.80$) information literacy levels were higher than those of the science teacher candidates ($X=3.56$). In terms of the subcategories of

information literacy levels, there was no difference between the groups regarding the skills of defining and communicating. According to the results of the Tukey Test given to find between which groups the differences between the departments were, the science teacher candidates' information literacy levels ($X= 3.69$) were higher than those of the preschool teacher candidates ($X=3.50$) in terms of defining information. The class teacher candidates' information literacy levels ($X= 3.96$) were higher than those of the preschool teacher candidates ($X=3.66$) in terms of communicating information.

4. Results and suggestions

According to the findings of the study, the average score of the teacher candidates in the information literacy scale is centred on the "I am not sure" option. This means that they did not have detailed or accurate knowledge of the subject and thus, they needed to be offered a course on information literacy in the beginning of their undergraduate studies.

Analysing the teacher candidates' information literacy levels according to the years of study, it was found that the fourth year students had fewer difficulties than the first year students had in terms of defining and presenting information.

Analysing in consideration of the genders, it was not found any significant differences in total between the teacher candidates' information literacy levels. However, a significant difference was found in favour of the male students regarding the skills of defining and evaluating information.

There was a significant difference between the groups in terms of the departments of the teacher candidates. The investigation of the source of the difference showed that it was between the class teacher candidates and the students of the department of preschool teaching and it was in favour of the former. Another significant difference between the groups was in terms of the subcategories of defining and communicating information.

The suggestions below can be put forward to increase teacher candidates' information literacy levels for the sake of a sustainable quality education.

1. Starting from the first year and spreading throughout the following years of study, courses on information literacy should be offered in the teacher training programs at universities.
2. Since practice is crucially important to acquire information literacy skills, research assignments and projects should be carried out. The instructors and lecturers should choose assignment and project topics which would help students improve their information literacy skills searching, obtaining, synthesizing and presenting information.
3. It should be remedied the deficiencies in the libraries and computer systems that students would need to use to find information.
4. The learning environments should be organized in a way that would enable students to access information through technological and written resources.

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