



# Relationship Between Usage of E-Content Portals and Digital Literacy Among Future Teachers

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## Abstract

An e-content portal is a platform that offers to share e-learning content like courses, presentations, podcasts and tests as well as content management for providers of information. It encourages dynamic and independent learning, accessing educational resources from anywhere at any time; facilitates global interaction with peers through discussions and private chats, getting study materials, etc. Teachers should be well equipped with skills and techniques to search, access, evaluate and use these kinds of educational resources. It develops a self-directed learning environment which leads to success in academic activities. As teaching professionals are central to the revolutionary changes in the education system, it is imperative to know the level of digital literacy among future teachers. The study attempts find out the usage of e-content portals and digital literacy among secondary level student teachers with respect to gender, streams of discipline, and information literacy training. This study also aimed to identify the relationship between the usage of e-content portals and digital literacy among future teachers.

**Keywords:** E-Content Portal, Digital Literacy, E-Resources, Information Literacy, E-learning, Teacher Students, Pedagogical Studies

## Introduction

Modern technology has become an integral part of our life. We need to accept changes and adopt modern technologies in the teaching-learning process, as it has shown great relevance in 21st-century techno pedagogy. Apart from the student's own abilities, the quality of the teachers who teach them is very important in developing the knowledge and skills of the learners. Well-educated teachers with adequate familiarity and skills in technology, readiness, and commitment to adopt these technologies in academic activities can develop scientific and critical thinking among students and thus satisfy them. The great revolution from the traditional way to the technological way

is forcing academicians to use creative and enlightening ways of new instructional methods to create and share knowledge.

The quality of education depends on the quality of teachers. The role and function of teachers are changing as they embrace technological developments that have revolutionized classroom teaching. Therefore, teachers now need to adapt to the skills required to impart knowledge effectively and keep up with the trend. E-content is a very influential method of instruction. It is a valuable and powerful tool for learners and teachers in their teaching-learning instruction system. E-content gives incredible opportunities for the production and dissemination of information at

different levels through various platforms. Because of the speedy development of comprehensive knowledge, the availability of a variety of information formats, and the easy approachability of E-platform made the integration of ICT in teaching and learning is unavoidable now.

### **Need and Significance of the Study**

A digitally literate teacher is the heart and soul of all technical activities of an academic institution. The quality of teaching-learning depends on the extensive knowledge of teachers and their competence to access and update information in time. Everyone in the education system, especially faculty, information professionals, and students, depend upon information for their day-to-day activities. Teachers occupy a significant role in nation-building because they are the makers of prospective citizens. As future teachers are beginners in the teaching profession, they must have the required capabilities for information retrieval from e-content portals, development of e-contents and modules and sharing of prepared e-content through various platforms, which plays a dynamic role in their existence and success in the profession. As teachers are central to the innovative changes in the education system, it is imperative to know the level of digital literacy and usage of e-content portals. Also, it is necessary to find out the relationship between the Usage of e-content portals and digital literacy. So, the present study focuses on identifying the Usage of e-content portals and digital literacy among future teachers.

### **Objectives of the Study**

- To find out the Usage of E-content Portals for accessing information among Future Teachers at Secondary Level
- To find out the level of Digital Literacy among Future Teachers at Secondary Level
- To find out whether there is any significant difference in the Usage of

E-content Portals with regard to Gender, Streams of Discipline and Information Literacy Training among Future Teachers at Secondary Level

- To find out whether there is any significant difference in the Digital Literacy with regard to Gender, Streams of Discipline and Information Literacy Training among Future Teachers at Secondary Level
- To find out the relationship between Usage of E-content Portals and Digital Literacy among Future Teachers at Secondary Level

### **Research Questions**

The research questions that guided and motivated the investigator for the present study are stated as follows.

- What is the level of Digital Literacy among Future Teachers?
- Is there any relationship between the level of Digital Literacy and Usage of e-content portals among Future Teachers?
- What are the various E-content portals that are being used by Future Teachers for accessing information?
- Are there any training programmes related to digital tools for the Future Teachers?
- Do the Future Teachers need training programmes to attain knowledge about the tools and techniques of information access, evaluation, and usage?

### **Materials and Methods**

The research methodology is the systematic procedures to solve research problems. The study uses descriptive survey method, as it is intended to identify the level of usage of e-content portals and digital literacy among secondary level future teachers with respect to Gender, Streams of Discipline and Information Literacy training. The Population of the present study is Future Teachers studying in Government, Aided

*Table 1: Scores on Usage of E-content Portals Among Future Teachers*

Variable	Number (N)	Mean	Median	Mode	SD	Skewness
E- Content Portals	1115	2.80	2.00	0.00	3.37	2.19

and Unaided Teacher Education Colleges of the Kerala State. Here the investigator selected 1115 samples from the targeted population of secondary level Future Teachers using stratified random sampling technique. The investigator employed two major tools such as Usage of Digital Resources and Online Tools Scale and Digital Literacy Test to collect data regarding the study. The investigator used both descriptive and inferential statistics for analyzing the data. Descriptive statistics used were Mean, Median, Mode, Standard Deviation, Skewness and Karl Pearson's Product Moment Coefficient of Correlation. Inferential statistics used were Test of Significance of Difference between the Means of Two Independent groups and One Way Analysis of Variance (ANOVA).

**Analysis and Interpretation of Data**

Analysis and Interpretation of the data means studying the tabulated material in order to determine the inherent facts or meanings. The analysis is a systematic process of selecting, categorizing, comparing, synthesizing and interpreting data to provide explanations of the single phenomena of interest (Mcmillan and Schumacher, 2001). The analysis is reflected to the nature of study and the data collected. The data for the study were collected and analyzed in a systematic way by applying appropriate statistical tools and the results of the study are discussed below.

**Usage of E-content Portals Among Future Teachers**

The investigator formulated the first objective of the study as “to study usage of e-content portals for information access

among Future Teachers at Secondary Level”. The data needed for the analysis of the objective was obtained by administering the self-constructed tool titled “Usage of Digital Resources and Online Tools Scale”. Analysis and interpretation of data was done by using Descriptive Statistics namely Frequency Distribution, Mean, Median, Mode, Standard Deviation and Skewness. The Descriptive Statistics employed for the distribution of the scores on usage of e-content portals is presented in table 1

The table 1 shows that the means of the score on usage of e-content portals is 2.80 and Standard Deviation of the usage of e-content portals is 3.37 and the skewness of the scores on usage of e-content portals is 2.19. Here skewness of the usage of e-content portals is positively skewed. The positive value of the skewness indicates that the scores have the tendency to cluster at the lower end of the distribution.

**Digital Literacy Among Future Teachers**

The investigator assessed the Digital Literacy of Student Teachers by administering the tool namely Information Literacy Test. For descriptive analysis the investigator used the descriptive statistics namely Mean, Median, Mode, Standard Deviation and Skewness is shown in Table 2.

From Table 2, the investigator observes that the Mean of the scores on Digital Literacy among Future Teachers is 4.56, Median is 4, Mode is 4 and Standard Deviation is 1.81. The skewness of the scores in Digital Literacy is 0.224. It is positively skewed. The positive value of the skewness indicates that the students who got high scores are comparatively less than those who got low

*Table 2: Scores on Digital Literacy Among Future Teachers*

Variable	Number	Mean	Median	Mode	SD	Skewness
Digital Literacy	1115	4.56	4.00	4.00	1.81	0.224

Table 3 : Distribution of the Scores on Digital Literacy Among Future Teachers

Variable	Number	Level of Digital Literacy in %					
		High		Moderate		Low	
		No	%	No	%	No	%
Digital Literacy	1115	327	29.33	668	59.91	120	10.76

scores. The investigator also classified the scores into three different levels namely High, Moderate and Low. Table 3 represents the distribution of the scores on Digital Literacy among Future Teachers based on high, moderate and low levels.

The investigator calculated the mean and standard deviation of the total scores on Digital Literacy into high, moderate and low levels. Students who obtained the scores above M+1 were categorised as high level, students who secured the scores below M-1 were categorised as low level and students who obtained the scores in between these values were categorized as moderate level. The percentage of Future Teachers belongs to each group was also taken. The table 3 shows that more students, i.e., 59.91% of the Future Teachers at Secondary Level have scores on Digital Literacy at moderate level. Of the total sample 29.33% has high level of Digital Literacy, and 10.76% has Digital Literacy at low level. From it is clear that majority of the Future Teachers at Secondary Level have moderate level of Digital Literacy.

#### Usage of E-content Portals Among Future Teachers Based on Gender, Streams of Discipline, and Information Literacy Training

Here the investigator tried to find out the significant difference in the Usage of E-content Portals with respect to the variables Gender, Streams of Discipline and

Information Literacy Training among Future Teachers at Secondary Level. For the analysis of data the investigator formulated a research hypothesis as “There exists a significant difference between the Means of Scores on the Usage of E-Content Portals between Future Teachers at Secondary Level with regard to Gender, Streams of Discipline and Information Literacy Training.” The comparisons are made using the test of significance of difference between means for large independent samples and given under the following heads.

#### Comparison of Usage of E-content Portals by Future Teachers

The means of scores on the Usage of Usage of E-content Portals among Male and Female Future Teachers were compared. For the analysis of data, the investigator had formulated the null hypothesis as, Null Hypothesis H01 (1): There is no significant difference between the Means of Scores on the Usage E-Content Portals between Future Teachers at Secondary Level with regard to Gender. In order to analyse the null hypothesis the investigator used two tailed t test for large independent sample. The value of t was set as 2.58 at .01 level of significance with degrees of freedom 1113 (N= 1115). Result is presented in Table 4.

From the table it is clear that the obtained t values for the total scores on Usage of

Table 4: Result of the Test of Significance of Difference Between Means of Scores on the Usage of Digital Resources and Online Tools among Future Teachers with regard to Gender

Variable	Gender	N	M	SD	df	t value	p value
E- Content Portals	Male	126	4.25	4.50	1113	5.21**	.000
	Female	989	2.61	3.15			

\*\*significant at .01 level of significance

Table 5: The Variable, Number, Mean and Standard Deviation of the scores on the Usage of E-content Portals Among Science, Arts and Language Future Teachers

Variable/ Components	Streams of Discipline	N	M	SD
E- Content Portals	Science	578	2.68	3.59
	Arts	264	2.79	2.88
	Language	273	3.06	3.30

E-content Portals is  $t(1113) = 5.21, p < .01$ . From this, it is clear that there is significant difference between the Male and Female Future Teachers at Secondary Level in their means of scores on the Usage of E- Content Portals. Hence the null hypothesis H01 (1) is not accepted with respect to the total scores on the Usage of E- Content Portals. From this, it is inferred that the Means of Scores on the total scores on the Usage of E- Content Portals among Future Teachers at Secondary Level with regard to Gender differ significantly. While comparing the mean scores of Male and Female Future Teachers, Male Future Teachers are significantly higher than the Female Future Teachers, in total scores on Usage of E-content Portals ( $M=4.25$ ).

**Usage of E-content Portals by Future Teachers Based on Streams of Discipline**

The Means of the scores on the Usage of E-Content Portals among Future Teachers with regard to Streams of Discipline were compared. For analysing the data, the investigator had formulated the null hypothesis as, Null Hypothesis H01 (2): There is no significant difference between the Means of Scores on the Usage of E-Content Portals among the Science, Arts

and Language Future Teachers at Secondary Level. In order to test the null hypothesis investigator used One Way ANOVA. The Number, Mean and Standard Deviation of the scores on the Usage of Usage of E-content Portals among Future Teachers with respect Streams of Discipline are given in the Table 5 and the results of ANOVA are in Table 6.

From the table the investigator observes that Language Future Teachers have highest Means of Scores on the total scores on Usage of E-Content Portals.

Result of the test of significance of difference between means of scores on usage of e-content portals of future teachers at secondary level based on streams of discipline is presented in Table 6.

In Table 6 it is observed that the F value for Usage of E- Content Portals is  $(F(2, 1114) = 1.153, p > .05)$  is not significant at .05 level. Hence the null hypothesis H01 (2) is accepted with respect to the components Usage of E- Content Portals.

**Usage of E-content Portals Among Future Teachers Based on Information Literacy Training**

The means of the scores on Usage of E-content Portals between Future Teachers

Table 6: Result of the Test of Significance of Difference Between Means of Scores on Usage of e-content portals of Future Teachers Based on Streams of Discipline

Variable/ Components	Streams of Discipline	N	Sources of Variation	SS	df	MS	F	Sig.
E- Content Portals	Science	578	Between Groups	26.156	2	13.08	1.15	.316
	Arts	264	Within Groups	12610.24	1112	11.34		
	Languages	273	Total	12636.40	1114			

Note: SS- Sum of Squares, MS-Mean Square, \* Significant at .05 level of significance

Table 7: Result of the Test of Significance of Difference Between Means of Scores on Usage of E-content Portals Among Future Teachers on their Information Literacy Training

Variable/ Components	Information Literacy Training	N	M	SD	df	t value	p value
E- Content Portals	Yes	130	4.33	4.67	1113	5.59**	.000
	No	985	2.60	3.10			

those who have attended Information Literacy Training and those who have not attended Information Literacy Training were compared. For analysing the data, the investigator formulated the null hypothesis as, Null Hypothesis H01 (3): There is no significant difference between the Means of Scores on the Usage of E-Content Portals between Future Teachers at Secondary Level who are attended the Information Literacy Training and those who are not attended Information Literacy Training. In order to analyze the null hypothesis the investigator used two tailed t test for large independent sample. The value of the t was set as 2.58 at .01 level of significance with degrees of freedom 1113(N= 1115). The result is presented in the table 7

From the table it is clear that the obtained t values for the Usage of E- Content Portals( $t(1113) = 5.59$ ,  $p < .01$  is significant at .01 level. From this, it is clear that there is significant difference between the Future Teachers at Secondary Level who are attended Information Literacy Training in their means of scores on Usage of E-Content Portals. Hence, the null hypothesis H01 (3) is not accepted with respect to Usage of E- Content Portals. From this it is concluded that Means of Scores on the Usage of E- Content Portals of Future Teachers at Secondary Level, differ significantly with regard to Information Literacy Training. While comparing the mean scores for the Usage of Usage of E-content Portals, the Future Teachers at Secondary Level who have attended Information Literacy Training are higher than the Future Teachers at Secondary Level who are not attended Information Literacy Training in E-Content Portals ( $M=4.33$ ).

### Digital Literacy Among Future Teachers Based on Gender, Streams of Discipline and Information Literacy Training

The next objective of the study was “to find out whether there is any significant difference in Digital Literacy with regard to Gender, Streams of Discipline and Information Literacy Training.” Here the investigator tried to find out the significant difference in the Digital Literacy with respect to the demographic variables namely Gender, Streams of Discipline and Information Literacy Training. The results are discussed under the following heads.

#### Digital Literacy among Future Teachers Based on Gender

The Means of scores on the Digital Literacy of male and female Future Teachers at Secondary Level were compared. For the analysis of data, the investigator formulated the following null hypothesis. Null Hypothesis H02 (1): There is no significant difference between the Means of Scores on the Digital Literacy among the Male and Female Future Teachers at Secondary Level. The null hypothesis H02 (1) was tested by using the test of significance of the difference between means for large independent samples. The value of the t was set as 1.96 at .05 level of significance with degrees of freedom 1113 (N=1115). Results are presented in Table 8.

From Table 8, the investigator observes that the obtained t values for Digital Literacy ( $t(1113) = 4.06$ ,  $p < .05$  is significant at 0.05 level. From this, it is clear that there is significant difference between the means of scores of Digital Literacy of male and female Future Teachers at Secondary Level. Hence, the null hypothesis H02 (1) is not

Table 8: Results of the Test of Significance of Difference Between Means of Scores on Digital Literacy Among Future Teachers

Variable/Components	Gender	N	M	SD	df	t value	p value
E- Content Portals	Male	126	5.17	1.79	1113	4.06*	0.000
	Female	989	4.48	1.79			
	Female	989	24.71	5.90			

Note: N-Number of Students, M- Mean, SD- Standard Deviation. \*Significant at .05 level of significance

accepted with respect to the Digital Literacy. From this, it is inferred that the Means of scores of the Digital Literacy among Future Teachers at Secondary Level with regard to Gender differ significantly. While comparing the means of scores of the Male and Female Future Teachers at Secondary Level in their Digital Literacy the Mean Scores on Male Students are higher than Female Future Teachers.

**Digital Literacy Among Future Teachers Based on Streams of Discipline**

The scores on Digital Literacy of Future Teachers belonging to different Streams of Discipline were compared. For analysing the data, the investigator had formulated the null hypothesis as, Null Hypothesis H02 (2): There is no significant difference between the Means of Scores on the Digital Literacy among the Science, Arts and Language Future Teachers at Secondary Level. In order to test the null hypothesis, the investigator used One Way ANOVA. The Number, Mean and Standard Deviation of the scores on Digital Literacy among Future Teachers with respect to Streams of Discipline and the results of ANOVA are given in the table 9 and table 10 respectively.

The variable, number, mean and standard deviation of the scores on digital literacy

among science, arts and language future teachers at secondary level is presented in Table 9

From the table the investigator observes that Science Future Teachers have highest Means of Scores on the total scores on Digital Literacy.

Result of the test of significance of difference between means of scores on digital literacy of future teachers at secondary level based on streams of discipline is presented in Table 10. It reveals that the obtained F value for Digital Literacy is (F (2, 1114) =2.58, p> .05) is not significant at .05 level. Hence the null hypothesis H02 (2) is accepted with respect to Digital Literacy.

**Digital Literacy of Future Teachers Based on Information Literacy Training**

The Means of the scores on the Digital Literacy of those who have attended the Information Literacy Training and those who have not attended the Information Literacy Training were compared. For the analysis of data, the investigator formulated the null hypothesis as, Null Hypothesis H02 (3): There is no significant difference between the Means of Scores on the Digital Literacy of Future Teachers at Secondary

Table 9: The Variable, Number, Mean and Standard Deviation of the Scores on Digital Literacy Among Science, Arts and Language Future Teachers at Secondary Level

Variable/Components	Streams of Discipline	N	M	SD
E- Content Portals	Science	578	4.64	1.73
	Arts	264	4.34	1.74
	Language	273	4.58	2.02

Table 10: Difference Between Means of Scores on Digital Literacy of Future Teachers Based on Streams of Discipline

Variable/ Components	Streams of Discipline	N	Sources of Variation	SS	df	MS	F	Sig.
E- Content Portals	Science	578	Between Groups	16.790	2	8.40	2.58	.076
	Arts	264	Within Groups	3618.46	1112	3.25		
	Languages	273	Total	3635.25	1114			

Note: SS- Sum of Squares, MS-Mean Square, \* Significant at .05 level of significance

Level those who have attended the Information Literacy Training and those who have not attended Information Literacy Training. The null hypothesis H01 (4) was tested by using the test of significance of the difference between means for large independent samples. The value of the t was set as 2.58 at .01 level of significance with degrees of freedom 1113 (N= 1115). The results are presented in the table 11

From the table it is clear that the obtained t values for the dimension Digital Literacy ( $t(1113) = 8.12, p < .01$ ) is significant at .01 level. From this, it is clear that there is significant difference between the Future Teachers those who have attended Information Literacy Training and those who have not attended Information Literacy Training in their means of scores on Digital Literacy. Hence, the null hypothesis H02 (3) is not accepted with respect to Digital Literacy. From this it is inferred that Means of Scores on Digital Literacy of Future Teachers at Secondary Level with regard to Information Literacy Training differ significantly.

Table 11: Result of the Test of Significance of Difference Between Means of Scores on Digital Literacy of Future Teachers Based on their Information Literacy Training

Variable/ Components	Information Literacy Training	N	M	SD	df	t value	p value
E- Content Portals	Yes	130	5.73	1.61	1113	8.12**	.000
	No	985	4.40	1.77			

Note: \*\* Significant at .01 level of significance, N-Number of students, M- Mean, SD- Standard Deviation

### Correlation between Usage of E-Content Portals and Digital Literacy Among Future Teachers

The next objective of the study was to find out the relationship between Usage of e-content portals and Digital Literacy for accessing Information. For the analysis of data, the investigator formulated the null hypothesis as, H03: There exists no significant relationship between the scores on Usage of E-Content Portals and Digital Literacy among Future Teachers at Secondary Level. The data was analysed using Karl Pearson's Product Moment Correlation r. The r value was set as .081 at .01 significant level of significance for the degrees of freedom 1113. The Karl Pearson's Product Moment Correlation r value between the scores on Usage of E-Content Portals with Digital Literacy are presented in the Table 12.

From the table it is clear that there exists positive correlation between Digital Literacy ( $r(1113) = .144, p < .01$ ) with Usage of E- Content Portals for accessing Information among Future Teachers. Hence,

Table 12: Relationship of Digital Literacy and its Components with Usage of E-Content Portals Among Future Teachers at Secondary Level

Usage of Digital Resources and Tools	Components of Information Literacy	Coefficient of correlation (r)	df	p value
E- Content Portals	Digital Literacy	.144**	1113	.000

\*\*Significant at.01 level of significance

the null hypothesis H0 3 is not accepted. This infers that Information Literacy and its dimensions are positively correlated with Usage of E- Resources.

**Major Findings**

- Usage of E- content portals among future teachers are less in number. Usage of E- Content Portals are positively skewed which indicated that the scores have the tendency to cluster at the lower end of the distribution.
- The majority of the Future Teachers at Secondary Level have moderate level of Digital Literacy.
- There exists significant difference between Secondary Level Male and Female Future Teachers in the total scores on Usage E- Content Portals. The mean values of Usage of E-Content Portals of Male Future Teachers are high compared to that of Female Future Teachers.
- There is no significant difference among Secondary Level Science, Arts and Language Future Teachers with respect to Usage of E- Content Portals.
- There exists significant difference between the total scores on Usage E-Content Portals of Secondary Level Future Teachers who have attended Information Literacy Training and those who have not attended the Training.
- There exists significant difference between Secondary Level Male and Female Student Teachers in the total scores of Digital Literacy. The literacy level of Male Student Teachers is higher

than that of the Female Student Teachers with respect to Digital Literacy.

- There is no significant difference in the means of scores on Digital Literacy of Secondary Level Student Teachers with respect to Science, Arts and Language Stream.
- There is significant relationship between Usage of E- Content Portals and Digital Literacy among Future Teachers at Secondary Level

**Conclusion**

From the findings of the study, it was concluded that there is a relationship between Usage of E- Content Portals and Digital Literacy among Future Teachers. The majority of the student teachers have moderate level of digital literacy and usage of e-content portals are very less. This conclusion reveals the need for digital literacy training for the latest developments in accessing authentic information in ethical and effective way. The study also reveals the importance of incorporating information literacy sessions in B.Ed curriculum. The quality of teacher education programme will be helpful in moulding knowledgeable and skilled teachers using new digital tools and educational resources.

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