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DIGITAL LITERACY AND ACADEMIC ACHIEVEMENT OF SECONDARY LEVEL TEACHER TRAINEES

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Abstract

The main aim of education is the multifaceted and holistic development of students. ICT is becoming increasingly popular as a teaching learning tool. It has changed the way of accessing, evaluating and using the information needed for the teaching learning process. Major portion of latest educational resources are presently available in digital media. The teacher trainees of today are the teachers of tomorrow. Therefore they should have proper ICT/digital literacy to attain better academic achievement and also to mould competent future sitizens. The present study assesses the digital literacy of teacher traineees and attempts to find the relationship between digital literacy and academic achievement among them.

Keywords: ICT, Digital Literacy, Teaching, Learning, Teaching Learning Tools, Students

1. Introduction

Information and Communication Technology can play a significant role in education. It has changed the way of accessing, evaluating and using the information needed for the teaching learning process. The access and evaluation of information is the characteristics of the modern era. This century is known as Information Age due to availability of abundance of information from various sources. Innovative technologies have provided new dimensions to learning. The development of teaching skill and overall professional development of teacher trainees greatly depends on their usage of technologies. So there is a need to understand the digital literacy among teacher trainees and their resultant academic achievement. In the present paper investigator tries to find the relationship between digital literacy and academic

achievement among the secondary level teacher trainees of Kottayam District, in Kerala, South India.

2. Need and Significance of the Study

The main aim of education is the multifaceted and holistic development of students. The use of technology is becoming increasingly popular as a teaching learning tool in education. Today digital technology is a medium for teaching learning process; and therefore students should have proper digital literacy to attain better academic achievement. The teacher trainees of today are the teachers of tomorrow. In the present circumstances, study on digital literacy and academic achievement of student teachers is very relevant to understand their efficency and effectiveness.

3. Objectives of the Study

- To study the Digital Literacy among Secondary Level Teacher Trainees.
- To Study the academic achievement of Secondary Level Teacher Trainees..
- To study the relationship between Digital Literacy and Academic Achievement of Secondary Level Teacher Trainees.

4. Objectives, Hypothesis, Methodology and Scope

Hypothesis

The hypothesis formulated by the investigator for the present study is 'There exists a significant relationship between Digital Literacy and Academic Achievement of Secondary Level Teacher Trainees'

Methodology

The present study follows a descriptive survey method to find out Digital Literacy and Academic Achievement of Secondary

Level Teacher Trainees with regard to Gender, Type of Management and Streams of Disciplines. The investigator used the self-constructed tool titled 'Information Literacy Test'for the present study

Sample of the Study

The sample consists of 400 Secondary Level Teacher Trainees. Spatially the area of coverage was limited to Kottayam Dstrict. Due weightage was given to the type of management of the institution, academic discipline and gender. The Stratified sampling technique was used for the selection of the sample.

Statistical Technique

The investigator used the following statistical techniques for the analysis and interpretation of data gathered for the present study

- Mean
- Frequency Distribution
- Standard Deviation
- Karl Pearson's Product Moment Correlation 'r'

5. Analysis and Interpretation

Distribution of the Scores on Digital Literacy

The investigator formulated the first objective as stated, 'To study the Digital Literacy among the Secondary Level Teacher Trainees'. Descriptive Statistics namely Frequency Distribution, and Mean, Standard Deviation were employed for the analysis of the data pertaining to the objective. The Mean and Standard Deviation of the obtained data was calculated. The descriptive statistics are presented in the form of frequency distribution tables. The distribution of scores on digital literacy among Secondary Level Teacher Trainees is presented in the Table-1.

Class Interval	Frequency	Percentage %
5-9	14	3.5
10-14	122	30.5
15-19	163	40.75
20-24	81	20.25
25-29	20	5
Above 29	0	0
Total	400	100

Table 1: Distribution of the scores on Digital Literacy among the Secondary Level Teacher Trainees

Table shows that 400 or 100% of the total sample of Teacher Trainees lie below the score 29. No Teacher Trainees scores above 29. The Descriptive Statistics employed for the distribution of the scores on digital literacy is presented in Table.2.

From the Table 2, it is observed that the Means of scores on digital literacy for the total sample is 16.69 and the Standard Deviation is 4.35. The Means of scores on digital literacy of Males (17.80) is greater than that of Girls (16.44). The Means of scores on digital literacy of students of Aided Teacher Education Colleges (19.25) is greater than that of students of Unaided Colleges (15.74) and Students of UCTE (13.72). The Means of Scores on digital literacy of Humanities Stream (17) is slightly greater than Commerce (16.81) and Science (16.39) Stream.

Variable	Category	Number	Mean	S.D.
digital literacy	Male	76	17.80	3.56
	Female	324	16.44	4.48
	Aided	167	19.25	4.43
	Unaided	133	15.74	2.83
	UCTE	100	13.72	3.39
	Science	183	16.39	4.25
	Humanities	163	17.00	4.76
	Commerce	54	16.81	3.23
	Total	400	16.69	4.35

Table 2: Variable, Number of Students, Maximum Score, Minimum Score, Mean and Standard Deviation of the Scores on Digital Literacy With Regard To Gender, Type of Management and Streams of Disciplines

Classification of Students Based on their Digital Literacy

It is desirable to classify the Secondary Level Teacher Trainees based on their scores of Digital Literacy. The investigator classified the whole sample based on the scores obtained in the tool titled 'Information Literacy Test'. The classification is as follows.

- Above M + 1ó denotes High Digital Literacy
- Between M + 1ó and M - 1ó denotes Average Digital Literacy
- Below M - 1ó denotes Low Digital Literacy

Where M is the Mean of Scores of Digital Literacy and ó is the Standard Deviation of the scores of Digital Literacy. Therefore M + 1ó are 21 and M - 1ó is 13. The e total sample is presented in the Table 3

Level of Digital Literacy	Range	Number of Students	Percentage
High	>21	62	15.5
Average	Between 21 and 13	282	70.5
Low	<13	56	14
Total		400	100

Table 3: Classification of the total sample of students based on digital literacy

From the table 3, the it can be observed that the range above 21 is considered as students with High digital literacy, the Range below 13 is considered as Students with Low digital literacy and the Range between 21 and 13 are considered as Students with Average digital literacy.

Thus the investigator interprets that 62 students scored above 21, they constitute 15.5% of the total sample and possess high digital literacy. 56 students of digital literacy of Secondary Level Teacher Trainees scored below 13 constituting 14% of total sample, they possess Low digital literacy. 282 students scored between 21 and 13. They possess Average digital literacy that is 70.5% of students of total sample. Therefore the investigator concluded that majority of Secondary Level Teacher Trainees that is 282 or 70.5% of total sample possess average digital literacy.

Distribution of the Scores on Academic Achievement

The second objective of the study was formulated to study the Academic Achievement among the Secondary Level Teacher Trainees of Kottayam District. For the study the data pertaining to the above objective was collected from the scores gained by the subjects in their University Exam in B.Ed Examination.

Analysis and interpretation of the second objective was done by using Descriptive Statistics namely Frequency Distribution, Mean, Standard Deviation. The Mean and Standard Deviation of the Academic Achievement of the total sample was calculated. Frequency Distribution of the scores on Academic Achievement among the Secondary Level Teacher Trainees for the sample is presented in Table 4.

Class Interval	Frequency	Percentage
43- 52	4	1
53-62	98	24.5
63-72	116	29
73-82	116	29
83-92	63	15.75
Above 92	3	.75
Total	400	100

Table 4: Frequency Distribution of the scores on Academic Achievement

Table 4 shows that 397 or 99.25% of the total sample of Secondary Level Teacher Trainees lie below the score 92. Only 0.75% of Students of Secondary Level Teacher Trainees lie above 95. The Descriptive Statistics employed for the scores on Academic Achievement is presented in Table 5.

Variable	Category	Number	Mean	S.D.
Academic Achievement	Male	76	69.07	9.75
	Female	324	71.93	10.08
	Aided	167	75.89	10.44
	Unaided	100	68.20	8.09
	UCTE	133	68.12	8.73
	Science	183	16.39	4.25
	Humanities	163	17.00	4.76
	Commerce	54	16.81	3.233
	Total	400	71.38	4.35

Table 5: Distribution of Mean and Standard Deviation of the Scores on Academic Achievement among the Secondary Level Teacher Trainees

From the Table 5 it is observed that the Means of scores on Academic Achievement for the total sample is 71.38 and Standard Deviation is 4.35. The Means of scores on Academic Achievement of Secondary Level Teacher Trainees of Males (69.07) is less than that of Females (71.93). The Means of scores on Academic Achievement of Students of Aided Teacher Education Colleges is (75.89) is greater than that of Students of Unaided Teacher Education Colleges (68.20) which in turn is greater than that of Students of UCTE (68.12). The Means of scores on Academic Achievement of Secondary Level Teacher Trainees of Humanities stream is (17) is greater than that of Commerce Stream (16.81) which in turn is greater than that of Students of Science Stream (16.39).

Correlation Between Digital Literacy and Academic Achievement

The objective of the study was 'to find out the relationship between Digital Literacy and Academic Achievement among the Secondary Level Teacher Trainees of Kottayam District'. For the analysis of the objective the investigator formulated the null Hypothesis H_0.

Null HypothesisH_0: 'There exists no significant relationship between Digital Literacy and Academic Achievement among the Secondary Level Teacher Trainees of Kottayam District'.

The data pertaining to this objective was analysed using Karl Pearson's Product Moment Correlation *r*. The *r* value was set as 0.098 at 0 .05 level of significance for degrees of freedom 398. The Karl Pearson's Product Moment Correlation *r* value between the scores on digital literacy and academic achievement among the students of secondary level teacher trainees is presented in Table 6

Variables	Number	*df*	Correlation (*r*)	$_p$ value
Digital Literacy Academic Achievement	400	398	0.507	0.000

Table 6: Relationship between Digital Literacy and Academic Achievement

Note: p<0.05 significant at 0.05 level

From Table 3.6, it is clear that the obtained *r* value 0.507 shows a positive correlation between Digital Literacy and Academic Achievement. The calculated r value ($r_{(398)}$= 0507, $p <$ 0.05) was less than the tabled value *r* value 0.098 at 0.05 level of significance with degrees of freedom 398. This indicated that there exists a significant correlation between digital literacy and academic achievement among the secondary level teacher trainees. In the view of this result, the null hypothesis H_0: 'There exists no significant relationship between digital literacy and academic achievement among the secondary level teacher trainees of Kottayam District' is not accepted.

Based on the analysis it can be concluded that there exists a significant relationship between Digital Literacy and Academic Achievement among the Secondary Level Teacher Trainees.

6. Findings

The following are the important findings of the study:

- From the analysis of the first objective, it can be concluded that 15.5 % secondary level teacher trainees have high digital literacy, 14% have low digital literacy and 70.05% teacher trainees possess medium digital literacy. It reveals that most of the secondary level teacher trainees of the total sample possess average digital literacy.
- The Means of scores on academic achievement of secondary level teacher trainees of males (69.07) is less than that of females (71.93).

- The Means of scores on academic achievement of students of aided teacher education colleges is (75.89) is greater than that of students of unaided teacher education colleges (68.20) which in turn is greater than that of students of UCTE (68.12).
- The Means of scores on Academic Achievement of Secondary Level Teacher Trainees of Humanities stream is (17) is greater than that of Commerce Stream (16.81) which in turn is greater than that of Students of Science Stream (16.39).
- The obtained *r* value 0.507 shows a positive correlation between Digital Literacy and Academic Achievement. The calculated r value ($r_{(398)} = 0.507, p < 0.05$) was less than the tabled value *r* value 0.098 at 0.05 level of significance with degrees of freedom 398. This indicated that there exists a significant correlation between Digital Literacy and Academic Achievement among the Secondary Level Teacher Trainees.

7. Conclusion

The Study has dealt with the Analysis and Interpretation of the objectives and hypothesis in detail. It analyzed the Digital Literacy and Academic Achievement of Secondary Level Teacher Trainees based on the sample selected from in Kottayam District. The study revealed that there exists a significant correlation between Digital Literacy and Academic Achievement among the Secondary Level Teacher Trainees. The study also revealed that the majority of the teacher trainees have average level of Digital Literacy.

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