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A Study On Digital Teaching Competency

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Abstract

To meet the present and future challenges, digital skills ensure in making one's educational resources and digital content, which is necessary to optimize and expand the ongoing ICT-based educational initiatives. The present study aims to examine the Digital Teaching Competency of faculty members teaching at ICFAI University Tripura, selecting a sample of 69 faculty members by using the stratified random sampling technique. The data was collected with the help of a "Development and Validation of the Teacher's Digital Competence Scale (TDiCoS)" standardized by Ergül and Taşarb (2022) and analyzed the data by using the 't' value and ANOVA using SPSS. The Findings of the study revealed that there is no significant difference among the faculty members based on their Gender, Stream, and age at 0.05 level of significance. The study concludes that the teachers are competent with the latest technology in the transaction of the curriculum and the evaluation of the same.

Keywords: Digital competency, ICT, Educational Resource, Digital Platforms, Digital Skill.

Introduction

Students of the 21st century must comprehend what it means to live in a world where there is an abundance of knowledge produced, and where society is expanding, changing, becoming more multicultural, and becoming more globalized. Therefore, in order to fulfill the needs of present generation students, teaching methods must alter from those used in the past. A methodical model that places a focus on competency development has been replacing the previous educational paradigm, which was centered on teaching. Thus, competence is defined as the ability to select and use the skills, information, and attitudes required to successfully negotiate a given professional situation. Teacher's digital competence is defined as their combination of knowledge, skills, and abilities that enable them to effectively integrate and use ICT as a methodological resource, integrated into the teaching-learning process, and transformed into Learning and Knowledge Technology (LKT) with a clear educational application. It is acknowledged that information and communication technologies (ICTs) have developed teaching tools, and that the use of these technologies in the classroom is closely linked to the characteristics of university professors, such as their attitudes or their knowledge, in terms of both their technical expertise and how they are used in the classroom. Technological advancements bring about specific modifications in certain spheres of society like ICT, or digital information and communication technology, is gradually replacing the earlier educational paradigm. As with other teaching aids and tools, everything depends on how the students use these resources and tools to help construct their own knowledge. Education will be crucial to the transformation of the entire nation into a knowledge economy and society empowered by digital means. To meet the present and future challenges of ensuring that every student receives a high-quality education, it is necessary to optimize and expand the current digital platforms and ongoing ICT-based educational initiatives.

India must meet the educational needs for millions of students. Higher education institutions must have competent faculty members and effective teaching and learning processes. The Indian Education Commission (1964-66) made the stunning statement that “the destiny of the nation is being shaped in its classrooms”. National Education Policy (NEP) 2020 acknowledges the need to balance using technology in the teaching-learning process at all educational levels. This includes enhancing classroom instruction and creating a more dynamic and engaging learning environment through the use of digital tools, multimedia resources, and online platforms. Traditionally, teachers used to teach and fill student’s heads with information and transfer knowledge. But during these past few decades, Teachers are transforming to be better at helping students identify and express their own skills. For this teachers need to match themselves with the present era, on the other hand Digital competency is essential for educators because it up to date with the constantly evolving needs of students, as well as to advance their professional development and improve student engagement. It enhances critical thinking, problem solving, digital content creation, and interpersonal relationships. Digital skills help to make one’s own educational resources and digital content, which improves the teaching-learning process. In order to successfully integrate digital pedagogy and make efficient use of digital technology in the classroom, educators need to improve their digital competences as the use of technology in higher education (HE) has changed significantly during the last few decades. Mostly, digital ones, like PowerPoint presentations, smart boards, and online learning platforms have replaced analogue technologies like whiteboards and flyers. For fulfilling or matching the needs of the present teaching-learning environment, teachers need to improve their competency towards technology. Hence, it was felt to examine the level of digital teaching competencies at ICFAI University Tripura.

Review of Related Literature

To examine the effects of high and low digital literacy on prospective teacher’s teaching competencies, a study was carried by Dar & Rather (2024). With multi-stage random sample strategy, 350 prospective instructors made up the study’s final sample, demonstrating that differences in teaching ability among aspiring teachers were significantly influenced by their levels of digital literacy.

An investigation by Radhamani & Kalaivani (2023) on Secondary teacher’s digital competencies, revealed significant difference based on their demographic variables, like computer course, age, and subject. Khoshnood et al. (2023) conducted a study on digital competency in the classroom leadership of new teachers, on a sample of 238 new teachers using the available sampling technique and Cochran's formula. The data was analyzed using stepwise regression analysis, confirmatory factor analysis, t-test, Pearson’s correlation coefficient, and stepwise regression analysis to determine the construct validity and search for straightforward relationships between the variables. The results of the survey showed that the new instructor’s overall digital proficiency was above average, with the exception of one area, the generation of digital content, where their assessment was mediocre. Furthermore, it was identified that there was a strong relationship between the components of digital proficiency and classroom leadership.

An extensive literature review by Pinto-Santos et al. (2022), focusing on the enhancement of teaching digital competence (TDC) in initial teacher preparation, observed an increasing use of the quantitative methodological approach regarding the teaching of digital competence, and concluded that teaching digital competence has a research line getting analyzed multi-dimensionally. A systematic literature review by Bilbao-Aiastui et al. (2021) examined the degree of technological proficiency among university instructors, and observed the need for improvement and observed that the degree of digital competency among university professors (DCUP) is moderate.

Objectives

1. To examine the level of Digital Teaching Competency of faculty members teaching at The ICFAI University Tripura.
2. To study the level of Digital Teaching Competency of faculty members based on their (a) Gender (b) Stream (c) Age

Research Questions

- H₂₁: Do the Faculty Members taking classes at ICFAI University possess a high level of Digital Teaching Competency?
- H₂₂: Is there any significant difference between Male and Female Faculty Members in relation to their Digital Teaching Competency?
- H₂₃: Is there any significant difference between Science and Non-Science Faculty Members in relation to their Digital Teaching Competency?
- H₂₄: Based on the age, do the Faculty Members differ significantly in their Digital Teaching Competency?

Methodology

The present study has employed the descriptive method, selecting a sample of 69 Faculty Members at ICFAI University, Tripura using a stratified random sampling technique.

Tools

Development and Validation of the Teachers' Digital Competence Scale (TDiCoS) by Ergül and Taşar (2022) consisting of 19 positive items was used to examine Digital Competency among faculty members of ICFAI University Tripura.

Statistical Techniques

Mean, SD, Skewness, Kurtosis, 't' value, and ANOVA are used to analyze the collected data.

Analysis and Interpretation of Data

H₂₁: Do the Faculty Members taking classes at ICFAI University possess a high level of Digital Teaching Competency?

Table 1: Distribution of the Whole Sample

Mean	Median	True Mode	Skewness	Kurtosis
69.69	70.18	71.16	-0.12	0.29

The sample is organized, and mean, median, true mode, skewness, and kurtosis were calculated as shown in table 1. The distribution was found to be nearly normal slightly negatively skewed (-0.12) and with little platy kurtic (0.29).

The faculty members were found to prefer ethical use of resources and selection of using digital resources, when compared to including technology or developing materials in their daily class. Thus, it is observed that the faculty members possess a moderate level of digital teaching competency.

H₂₂: Is there any significant difference between Male and Female Faculty Members in relation to their Digital Teaching Competency?

Table 2: Comparison between male and female faculty members in relation to Digital teaching Competency.

Sample	N	Mean	SD	't' Value
Male	43	71.69	11.81	1.96
Female	26	66.38	10.3	

df = 67

The mean score of the Male and Female Teachers in relation to their Digital Competency is 71.69 and 66.38 respectively. From the above table-2, it is found that the obtained 't' value is 1.96 which is smaller than 't' table value (2.00) for 67 degrees of freedom, which indicates not significant at 0.05 level of significance.

Hence, it is identified that there is no significant difference between male and female faculty members in relation to their Digital Teaching Competency.

H₂₃: Is there any significant difference between Science and Non-Science Faculty Members in relation to their Digital Teaching Competency?

Table 3: Comparison between streams in relation to Digital Teaching Competency.

Sample	N	Mean	SD	't' Value
Science	28	71.53	12.19	1.08
Non Science	41	68.43	10.95	

df = 67

The mean score of the Science and Non-Science Teachers in relation to their Digital Competency is 71.53 and 68.43 respectively. The above table 3 shows that the 't' calculated value is 1.08 which is smaller than 't' table value (2.00) for 67 degrees of freedom, at 0.05 level of significance.

Thus, it is revealed that there is no significant difference between Science and Non-Science faculty members in relation to their Digital Competency.

H₂₄: Based on the Age, do the Faculty Members differ significantly in their Digital Teaching Competency?

Table 4: Comparison of Age in relation to Digital Competency.

		Sum of Squares	df	Mean Square	F	Sig.
<30 Y (17)	Between Groups	107.649	2	53.825	53.825	0.672
30-39 Y(39)	Within Groups	8870.959	66	134.408	134.408	
>39 Y(13)	Total	8978.609	68			

Multiple Comparisons

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.
< 30Y	30-39Y	-2.430	3.369	0.752
	> 39Y	-3.584	4.271	0.680
30-39Y	< 30Y	2.430	3.369	0.752
	> 39Y	-1.154	3.713	0.948
< 39Y	< 30Y	3.584	4.271	0.680
	30-39Y	1.154	3.713	0.948

With the help of SPSS, ANOVA is calculated to compare the digital competencies of faculty members in relation to their age groups. From the analysis, it shows that there is no significant difference among the faculty members in relation to their digital competency.

Hence it is examined that, based on the age, the faculty members do not differ significantly in their Digital Teaching Competency.

Discussion

In an analysis of the present study, findings of the first hypothesis possessing an average level of digital teaching competency, have been supported by the findings of the study by Moreira et al. (2023). Concerning the second hypothesis, Basantes-Andrade (2020) and Jorge-Vázquez (2021) were in favor of the result that indicates that there is no significant difference between Male and Female faculty members in relation to their digital competency. Sakshi and Kaur (2019) were in favor of the finding of the third hypothesis, with no significance difference between Science and Non-Science Faculty members in relation to their Digital Competency.

Conclusion

Digital competency is required for teachers in the modern world to meet student's changing needs, prepare them for future success, access educational resources, personalize learning experiences, communicate and collaborate effectively, promote critical thinking skills, and adapt to changing educational landscapes. Continuous professional development and assistance are essential for ensuring that teachers remain competent and confident in including technology in their teaching environment. The study concludes that, in a world of the utmost need for digitally sound and techno-savvy teachers, the teachers must be competent with the latest technology in the transaction of the curriculum and the evaluation of the same. There must be the practice of getting updates with the latest technology and blended pedagogy in the curriculum in relation to the emerging needs of the society.

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