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Digital Competency Among College Teachers: A Comparative Study of Public and Private Institutions in Kamrup (M) District, Assam

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Abstract
ICT has a very important role in the teaching learning process. Higher educational institutional are expected to adopt the ICT tools with the competence of handling it efficiently. In today's scenario, teachers are highly expected to acquired the skills required for digital competence. The present study comparatively analyses the digital competency between the private and public colleges of Kamrup (M) district of Assam. The total of 100 sample was drawn for the study and analysis & interpretation was been done by computing Mean, Standard Deviation, t-test, percentage and thematic coding is used for the open-ended responses were categorized into key themes such as; Support services, Teacher Awareness, New technologies and administrative involvement.

Keywords: Digital Competency, ICT, Public-Private Institutions.

1. Introduction

Competence is the ability to perform work in a skilled way and bring results to the assigned work. According to Stockwell safety website, the competency have the following features: skill, knowledge, attitude, training and experience abbreviated as SKATE (Harries, 2023). Spante and others in their review article have carefully examined the different definitions and concepts of digital literacy and digital competence (Spante et al., 2018). Understanding the different literature, digital competency reflects the skilful handling of digital technology with confidence. It is also experience and critically understanding of both the technology and the digital environment. Digital Competency (DC) is the next level of digital literacy where skills are applied or implemented with experience. Every professional sector today not only demands about the setting up the technology infrastructure but also prioritizes the need for digital competence for handling the technology. Today, higher education is not merely a traditional classroom but also an integration of technology. The teaching-learning process is supported by different ICT tools, being it computer technology, Network technology or Artificial intelligence. This technology needs proper human resources with digital competency. Teachers of higher educational institutions need to acquaint themselves with different levels of technical skills required for handling the digital technology. The National Assessment and Accreditation Council (NAAC), an autonomous institution of the University Grants Commission (UGC), has emphasized the ICT infrastructure development of the institution along with the use ICT tools in the teaching-learning process. This indicates that teachers need to be digital competence in enhancing their ICT skills. The Kamrup (M)

district of Assam has both the private and government or provincialized colleges. The literature research reveals that due to lack of study, the level of digital competence of the college teachers of Kamrup (M) district of Assam is still an unknown answer. So, a study is required to understand the digital competency of college teachers of Kamrup (M) district of Assam.

2. Review of Related Literature

2.1 Digital Competency and Infrastructure Availability

Research indicates that the both sectors are adequately prepared for technology-integrated integration and suggests continuous professional development and blended- learning adoption (Mittal & Dubey, 2025). In contrast, teacher's digital competence of public schools only possessed basic knowledge about digital tools as compared to private teachers (Mohammad et al., 2025). It highlighted the need of ICT training, proper infrastructure facilities and policy support for government schools which restricts the accessibility for teachers (Das & Singh, 2025).

2.2 Teacher Skills and Adequate Training

The success of digital knowledge largely depends on teachers' skills, competency and proper access to adequate training for professional development. Studies shows that prospective teachers possess strong theoretical knowledge but lag in practical application, creating a knowledge-practice gap, adequate training programs, and professional development programs are required to bridge this gap (Fazal et al., 2024).

2.3 Organizational Readiness and Teacher Preparedness

Researches shows major barriers that led to insufficient organizational support, lack of professional development, and resistance rooted in fear of failure and perceived threat to autonomy and unavoidable technical challenges eg., outdated devices and unreliable internet Additionally, it addresses the pedagogical readiness that requires continuous professional development and organizational support (Yulin & Danquah).

3. Significance of the Study:

The significance of this study is in the context to find out the digital competency level of college teachers in public and private institutions in Kamrup (M) district, Assam. Researchers found out that digital competency are an essential skill for better teaching-learning process. The findings of this study helps in analyzing the challenges and suggestions for both the institution type. It enhances the need of digital competency among in-service teachers from both the institution types that will lead to improved teaching effectiveness and overall quality development of the learning process in higher education.

4. Objectives

1. To examine the overall level of digital competency among college teachers in Kamrup (M) District of Assam.
2. To compare digital competency level of college teachers in public and private educational institutions.
3. To study the role of institutional support and infrastructure facilities in enhancing digital competency of teachers.

5. Hypothesis

1. There is no significant difference in overall level of digital competency among college teachers in Kamrup (M) district of Assam.
2. There is no significant difference in the digital competency level of college teachers between public and private institutions.

6. Methodology

Research Method: In the present study Mixed Method research design was used by the researcher that integrates both quantitative and qualitative research method to ensure a comprehensive analysis. The Survey method focused on statistical data related to digital competency of college teachers and comparison between public and private educational institutions. Along with that the role of institutional support and infrastructure facilities in enhancing the competency of teachers in Kamrup (M) district, Assam.

6.1 Population of the Study:

The population of the study comprises college teachers those who are currently in active service (in-service) in both public and private educational institutions from different departments in Kamrup (M) district, Assam. In overall total in-service teachers in Assam is 12,972 (*Source: DHE 2016-17). The investigator mentioned that there are 40 public colleges (provincialized and government aided) and 70 private colleges in Kamrup (M) District, Assam. As the exact district-wise teacher specific data is not available in official records so through estimation method 4,300 teachers approx. is been estimated in Kamrup (M) district, Assam.

6.2 Sample:

The study is conducting in Kamrup Metropolitan District, Assam. The sample for this study comprises of 100 college teachers currently in service from Science, Arts and Commerce departments from public and private educational institution type. The researcher has selected 20 public and 20 private colleges total of 40 educational institutions by using simple random sampling method were 50 respondents are been drawn out from public and 50 from private educational institutions in Kamrup Metropolitan district, Assam. So, the total sample size from the population is 100 respondents.

6.3 Tools for Data Collection:

The researcher used self-constructed questionnaire to know the digital competency level of college teachers. The questions are based on four dimensions –

- Digital Knowledge & Skills.
- Attitude towards digital knowledge and self-efficacy.
- Digital Pedagogical practices.
- Institutional Support.

The questionnaire is constructed based on expert recommendation to ensure content validity. Whereas, pilot testing and reliability test i.e., Cronbach Alpha were not conducted in this study. Proper feedback is been taken from the subject expert to polish the questionnaire and open ended questions which is been collected through the help from Google Survey form. Hence, future researches should indulge in pilot testing and statistical reliability to properly scrutinize the research tests.

6.4 Procedure for Data Collection:

The procedure for data collection is seen to be the actual process of collecting data that the researcher wants to analyze, interpret and to state the findings of the study. Here, the data is collected through

primary sources i.e., using Google Forms proper structure questionnaires are designed based on the dimensions of this study with expert guidelines and recommendations. Secondary data is been collected from the online available sources like papers, journals or previous published articles for better analysis.

7. Analysis and Interpretation of Data:

Collected data were analyzed by using mixed method research design such as for quantitative (mean, S.D, t-test) is interpreted with the help of the MS Excel software. For qualitative responses are categorized into themes as shown in objective no. 3 analysis.

Hence, the results are presented in the following datasets

Objective 1: To examine the overall level of digital competency among college teachers in Kamrup (M) District of Assam.

Table No 1: Representation of Digital Competency Level in Percentage

Management	N	Percentage
Public	50	64%
Private	50	96%

Analysis: The Table No 1 indicates that the public institution management type represents 64% of competency level which represents a moderate level of digital competency. Private institution management type represents 96% of competency level which represents a very high level of digital competency. Therefore, Null hypothesis 1 is rejected and it is interpreted that there is a significant difference in overall level of digital competency among college teachers in Kamrup (M) district, Assam. Hence it is found that private college teachers have better digital competency than the public college teachers of the selected district.

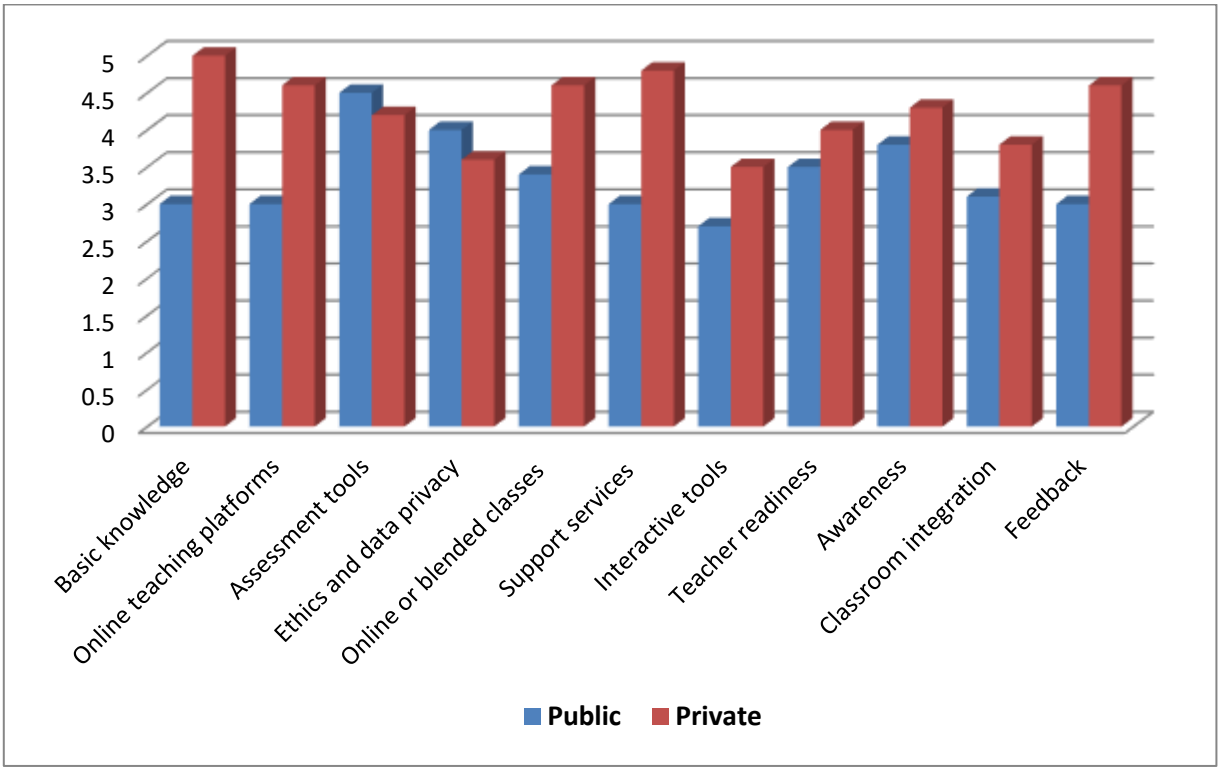
Objective 2: To compare the digital competency level of college teachers in public and private educational institutions.

Table No 2: Representation of Mean, Standard Deviation and t-test

Management	Mean	S.D	N	df	t-value	t-critical	Level of Significance	S/NS
Public	3.23	3.15	50	98	2.34	1.98	0.05	Significant
Private	4.80	3.58	50					

Analysis: The Table No 2 indicates that total number of public and private institution type in which mean of public institution is 3.23 and private institution mean is 4.80. The SD of public institution is 3.15 and private institution type is 3.58 and degree of freedom of both is 98. The value of t-test is 2.34 and the value of t critical value is 1.98 and it is seen to be significant at 0.05 level. Therefore, the Null hypothesis 2 is rejected and it is interpreted that there is a significant difference existing in the digital competency level of college teachers between public and private educational institution. Hence, private college teachers showed better digital competency than the public college teachers.

Figure 1: Mean of Digital Competency among Public and Private College Teachers



Objective 3: To study the role of institutional support and infrastructure facilities in enhancing digital competency of teachers.

Analysis: For better analysis of the study and to complement it the questionnaire also included open ended questions to write about their perspectives towards the availability or certain facilities that are been provided by the college teachers and whether they have some suggestions to include in their institutional management. This process helped in identifying the challenges faced by the college teachers or educators in their daily life while utilizing the new adaptive technologies.

Then with the help of thematic coding those responses are categorized into themes such as support services provided by the institutions provided in both management type, teachers awareness towards learning new technologies and certain challenges faced by the institution while learning those new tools.

In public institution management it states that in-service college teachers here face major issues and those are:

Support Services: Technical support, adequate digital infrastructure, Need of Smart classroom and proper access to ICT tools for teachers and students.

Teacher Awareness: Resistance to change, improper guidance, Lack of awareness of digital tools, online teaching-learning platforms and recent trending facilities in technological fields.

Assessment: Difficulty with interactive technologies, new online learning assessment tools, modern digital tools.

Administrative Involvement: Workshops, proper professional development strategies, resources and times and institutional support for better quality management.

On the other hand, private institution of Kamrup (M) district, Assam reflected better productivity in digital competency knowledge such as:

Support services: Availability of proper infrastructure facilities, Reliable high-speed internet connectivity.
Teacher Awareness: Digital learning platforms for effective teaching-learning, proper guidance, continuous up skilling to emerge with new technologies.
Assessment: Innovative and interactive tools, modern pedagogical tools and practices.
Administrative Involvement: Workshops, Conferences, Seminars, Quality management.

8. Findings of the Study:

1. The findings revealed that the overall digital competency of college teachers in Kamrup (M) district, Assam was found to be that public educators have moderate level which indicates the need of understanding digital tools on the other hand private educators have very high level of digital competency.
2. It revealed that out of 100 college teachers from each management type .e., public college teachers have 64% and private college teachers have 96% as the overall level of digital competency among college teachers in Kamrup (M) District of Assam.
3. In comparison of both the educational management type it revealed that public institution (M=3.23, S.D.=3.15) and private institution (M=4.80, S.D.=3.58) whereas t-test value revealed 2.34 and df = 98, therefore null hypothesis is been rejected at 0.05 level.
4. It found out that public institution management type have shown better result in assessment tools and ethics & data privacy in comparison to private management type.

9. Delimitation of the Study:

1. The study is confined to find out the significant difference between public and private institutions in Kamrup (M) District, Assam only.
2. The study is delimited only to find out the overall level of teachers digital competency in the selected district.
3. The study is confined to find out the specific dimensions and those are: Digital Knowledge & Skills, Attitude towards digital knowledge and self-efficacy, Digital Pedagogical practices and Institutional Support.

Conclusion

In comparing the digital competence, the findings of the study reflect the better performance of private college teachers than public institutions. The public institutions need to strengthen their ICT infrastructural facilities. Furthermore, both the private and public institutions have to focus on different training programs, workshops or other continuous development programs. The study basically focuses on the digital competence of the population at the very initial level. The findings of the study are only indicative and cannot be concluded with a generalized statement. It is further required to study the digital competence of college teachers with other parameters that have not been included in this study.

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