

The Effect of Digital Competence on Teaching Skills of B.Ed. Trainee Teachers in West Bengal

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Abstract:

Digital competence is the set of knowledge, skills and attitudes that should be acquired by all people in order to ensure critical and creative use of ICT and digital media for the purpose of achieving goals related to work, learning and leisure. The NEP 2020 talks about creating higher performance standards for teachers clearly stating out the role of the teacher at different levels of expertise/stage and competencies required. Inadequate digital competence can lead to poor teaching experience particularly when the teaching options for the teachers are limited to online mode. The aim of the researcher is to find out the Effect of Digital Competence on Teaching Skills (School Internship) of B.Ed. Trainee Teachers. The researcher used Descriptive Survey method. In the present study, the researcher selected total 200 B.Ed. Trainee Teachers (Both Male & Female) of 3rd semester, belonging to three B.Ed. Colleges (Both Govt. Aided & Self- Financed) of North Twenty Four Parganas and Nadia District. From the result it shown that Digital Competence and Teaching Skills are positively correlated. Hence to improve the quality of teacher education, Trainee teachers should be provided digital technological training programme so that they can digital techno-savvy in delivering their lectures using digital technologies.

Keywords: Digital Competence, Teaching Skills, NEP-2020, B.Ed. Trainee Teachers.

1. INTRODUCTION

Digital competence is the set of knowledge, skills and attitudes that should be acquired by all people in order to ensure critical and creative use of ICT and digital media for the purpose of achieving goals related to work, learning and leisure. Information about digital competences serves to determine readiness to move online or whether students need special support from their institution to successfully take online classes. Areas where skills are lower can be remediated and reinforced to avoid learning barriers. The NEP 2020 talks about creating higher performance standards for teachers clearly stating out the role of the teacher at different levels of expertise/stage and competencies required. Teachers will also have to be digitally trained to blend into the digital learning processes. Every teacher should know how to use digital technology and subject area content effectively in their virtual classroom teaching. Technologies seem to help prospective teachers overcome a great array of digital teaching challenges or difficulties encountered during their teaching practice. Technology helps Trainee Teachers to be more professional as they allow them to have increased access to a great variety of up-to-date innovative resources to improve teaching-learning activities. Inadequate digital competence can lead to poor teaching experience particularly when the teaching options for the teachers are limited to online mode. Hence, it became relevant to investigate teachers' level of digital competence as an essential condition.

1.1. Definition of the terms used in the Study

1.1.1. Digital Competence

Digital Competence consists of a variety of skills and competencies and its scope is wide covering media and communication, technology and computing, literacy and information science. Digital competence consists of technical skills and abilities to use digital technologies in a meaningful way for working, studying and for daily life in various general activities, abilities to critically evaluate the digital technologies and motivation to participate in the digital culture.

1.1.2. Teaching Skills

Teaching Skills define teaching arts or behaviours intended to facilitate pupils' learning directly or indirectly. Teaching skill is the hard and soft skills that help a teacher keep students engaged. These skills can also help teachers position themselves as an educator, earning the attention and respect of their students. Some teaching skills come naturally to some, whereas others may require development with practice. Developing teaching skills is only one part of becoming a good teacher. In the present study the obtained School Internship Marks during practice teaching at 3rd semester are taken as Teaching Skills.

1.1.3. B.Ed. Trainee Teachers

B.Ed. Trainee Teachers are those practicing teachers who are undergoing two-year B.Ed. teacher training programme in any teacher training institute approved by National Council for Teacher Education (New Delhi). In the present study 'B.Ed. Trainee Teachers' refers to those Male & Female of 3rd semester B.Ed. Programme in West Bengal.

2. REVIEW OF RELATED LITERATURE

Tabish, S. I. (2023) studied a research work on **"A Study on Life Skills Emotional Intelligence and Digital Competence of College Teachers."** The study showed a significant difference between the male and female college teachers in the digital competence. The male college teachers were more digitally competent than the female college teachers.

Das, K. & Chowdhury, R. (2019) researched on **"Analytical Study on Practice Teaching of B.Ed. Students in B.Ed."** In the result students problems and their activities were highlighted. In spite of some problems, in many cases, the two-year course plays an important role for students and the next generation of pre-service teachers.

Bhat, S. M. (2018) had conducted a research work on **"Study of Problems of Pupil Teacher during Practice Teaching."** The result showed that the positive experiences during teaching practice, student teachers experienced challenges which affected their perception of the teaching profession.

Ramkrishna (2017) had conducted a research work on **"Teacher Effectiveness in Relation to Self Esteem Job Satisfaction and Digital Competence."** The result showed that Teacher Effectiveness, Self Esteem, Job Satisfaction and Digital Competence were positively correlated.

Jain, V. & Shetty, A. S. (2022) had conducted research work under the title **"Digital Competence among School Teachers across Gender."** The result showed no significant difference among the male and female school teachers in digital competence.

Sanchez, et al., (2022) had conducted a study entitled **"Development of Digital Competence for Research."** The result the implementation of the course used in the blended learning modality is considered to significantly improve the DCR of a group of undergraduate engineering students. It is concluded that the implementation of a course designed in the blended learning modality improves digital competence for research (DCR).

Kack, A. (2019) researched on “**Digital Competence and Ways of Thinking and Practising in Swedish Teacher Education.**” The result showed that all teachers, not only teachers with a migrant background, need digital competence at an advanced level to develop digital competence among students. Thus, educators must identify unfamiliar ways of thinking and practicing, plan for authentic competence development, and address the diversity in digital competence.

Suleiman, et al., (2019) carried out a research work on “**Assessment of Digital Competencies of Pre-Service Teachers and its Influence on Technology Integration in Ahmadu Bello University, Zaria.**” The results showed that the students were digitally competent but were deficient in digital content creation and problem solving.

3. THE RESEARCH PROBLEM

Emergence of the problem, Statement of the Problem, Major Research Questions, Objectives, Null Hypotheses and Delimitations of the study are mentioned here.

3.1. Emergence of the Problem

The NEP 2020 talks about creating higher performance standards for teachers clearly stating out the role of the teacher at different levels of expertise/stage and competencies required. Every teacher should know how to use digital technology and subject area content effectively in their virtual classroom teaching. Technology helps Trainee Teachers to be more professional as they allow them to have increased access to a great variety of up-to-date innovative resources to improve teaching-learning activities. Inadequate digital competence can lead to poor teaching experience particularly when the teaching options for the teachers are limited to online mode. Hence, it became relevant to investigate teachers’ level of digital competence as an essential condition.

The aim of the researcher is to find out the Effect of Digital Competence on Teaching Skills (School Internship) of B.Ed. Trainee Teachers. Such an issue has hardly been studied in the Indian or Foreign context. The researcher believes that the findings of the study would help developing and updating the education system.

3.2. Statement of the Problem

The purpose of this descriptive survey research is to study the Effect of Digital Competence on Teaching Skills (School Internship scores) of B.Ed. Trainee Teachers. The title of this research study is:

“The Effect of Digital Competence on Teaching Skills of B.Ed. Trainee Teachers in West Bengal.”

3.3. Major Research Questions

- What is the present status of Digital Competence of B.Ed. Trainee Teachers?
- Is there any difference between Male & Female B.Ed. Trainee Teachers on the basis of Digital Competence and Teaching Skills?
- Is there any difference between Male & Female B.Ed. Trainee Teachers and Govt. Aided and Self-Financed B.Ed. College on the basis of Teaching Skill?
- Is there any significant relationship between Digital Competence and Teaching Skills?

3.4. Objectives of the Study

- To determine the level of Digital Competence of B.Ed. Trainee Teachers;
- To find out the significant difference between Male & Female B.Ed. Trainee Teachers on the basis of Digital Competence and Teaching Skills;
- To investigate the Digital Competence and Teaching Skills on the basis of Govt. Aided and Self-Financed B.Ed. College;
- To study the significant relationship between Digital Competence and Teaching Skills.

3.5. Hypotheses of the Study

- H_{01} There would be no significant difference between Male & Female B.Ed. Trainee Teachers on the basis of their Digital Competence;
- H_{02} There would be no significant difference between Male & Female B.Ed. Trainee Teachers on the basis of their Teaching Skills;
- H_{03} There would be no significant difference between Govt. Aided and Self-Financed B.Ed. College on the basis of Digital Competence;
- H_{04} There would be no significant difference between Govt. Aided and Self-Financed B.Ed. College on the basis of Teaching Skills;
- H_{05} There would be no significant relationship between Digital Competence and Teaching Skills of B.Ed. Trainee Teachers;

4. METHODS & TOOLS

4.1. Population

In this research work the population is all 3rd semester B.Ed. Trainee Teachers of West Bengal.

4.2. Sample

In the present study, the researcher selected total 200 B.Ed. Trainee Teachers (Both Male & Female) of 3rd semester, belonging to three B.Ed. Colleges (Both Govt. Aided & Self-Financed) of North Twenty Four Parganas and Nadia District.

4.3. Variables of the Study

There are three types of variables in this Descriptive Survey method-

- **Independent Variable:** Digital Competence
- **Dependent Variable:** Teaching Skills (Practice Teaching Marks)
- **Categorical Variables:** Gender, College Category, Digital Competence Level

4.4. Tool used in the Study

Digital Competence Assessment Questionnaire (DCAQ) scale was developed by Shipra Srivastava and Kiran Lata Dangwal. This scale consists 60 items divided into four dimensions—i) Technological/ Operational/ Instrumental, ii) Information Processing & Management, iii) Pedagogical/ Knowledge Construction, iv) Digital Citizenship. It was administered on 24 to 65 years age group.

5. DATA ANALYSIS & INTERPRETATION OF DATA

Table 5.1: Representing t-value between Digital Competence of Male & Female B.Ed. Trainee Teachers

H_{01} There would be no significant difference between Male & Female B.Ed. Trainee Teachers on the basis of Digital Competence

| Groups | No. of Trainee Teachers | Digital Competence | | Df | T | Table value of t at 0.05 level of significance |
|--------|-------------------------|--------------------|------|-----|-------|--|
| | | M | S.D | | | |
| Male | 90 | 28.92 | 7.67 | 198 | 0.757 | 1.97 |
| Female | 110 | 28.14 | 6.98 | | | |

Table 5.1 shows that it is not significant at the 0.05 level of significance. So the null hypothesis is retained. It means there is no significant difference between Male & Female B.Ed. Trainee Teachers on the basis of Digital Competence.

Table 5.2: Representing t-value between Teaching Skills of Male & Female B.Ed. Trainee Teachers

H₀₂ There would be no significant difference between Male & Female B.Ed. Trainee Teachers on the basis of Teaching Skills

| Groups | No. of Trainee Teachers | Teaching Skills | | Df | T | Table value of t at 0.05 level of significance |
|--------|-------------------------|-----------------|------|-----|------|--|
| | | M | S.D | | | |
| Male | 90 | 171.78 | 3.78 | 198 | .184 | 1.97 |
| Female | 110 | 171.68 | 3.57 | | | |

Table 5.2 shows that it is not significant at the 0.05 level of significance. So the null hypothesis is retained. It means there is no significant difference between Male & Female B.Ed. Trainee Teachers on the basis of Teaching Skills.

Table 5.3: Representing t-value between Digital Competence of Govt. Aided & Self- Financed B.Ed. College

H₀₃ There would be no significant difference between Govt. Aided and Self-Financed B.Ed. College on the basis of Digital Competence

| Groups | No. of Trainee Teachers | Digital Competence | | Df | T | Table value of t at 0.01 level of significance |
|---------------|-------------------------|--------------------|------|-----|-------|--|
| | | M | S.D | | | |
| Govt. Aided | 50 | 32.16 | 6.98 | 198 | 4.285 | 2.60 |
| Self Financed | 150 | 27.27 | 7.00 | | | |

Table 5.3 shows that it is significant at the 0.01 level of significance. So the null hypothesis is rejected. It means there is significant difference between Govt. Aided and Self-Financed B.Ed. College on the basis of Digital Competence.

Table 5.4: Representing t-value between Teaching Skills Govt. Aided & Self- Financed B.Ed. College

H₀₄ There would be no significant difference between Govt. Aided and Self-Financed B.Ed. College on the basis of Teaching Skills

| Groups | No. of Trainee Teachers | Teaching Skills | | Df | t | Table value of t at 0.05 level of significance |
|---------------|-------------------------|-----------------|------|-----|-------|--|
| | | M | S.D | | | |
| Govt. Aided | 50 | 172.80 | 3.09 | 198 | 2.429 | 1.97 |
| Self Financed | 150 | 171.37 | 3.77 | | | |

Table 5.4 shows that it is significant at the 0.05 level of significance. So the null hypothesis is rejected. It means there is significant difference between Govt. Aided and Self-Financed B.Ed. College on the basis of Teaching Skills.

Table 5.5: Representing coefficient of correlation between Digital Competence and Teaching Skills of B.Ed. Trainee Teachers

H₀₅ There would be no significant relationship between Digital Competence and Teaching Skills of B.Ed. Trainee Teachers

| Variables | No. of Trainee Teachers | Df | Correlation coefficient (r) | Table value of r at 0.01 level of significance |
|--------------------|-------------------------|-----|-----------------------------|--|
| Digital Competence | 200 | 198 | 0.569 | 0.181 |
| Teaching Skills | | | | |

From the Table 5.5., it shows that the null hypothesis is rejected. It means there is significant relationship between Digital Competence and Teaching Skills of B.Ed. Trainee Teachers. The r value in the above table indicates that the variables Digital Competence and Teaching Skills are moderately correlated. From the r value in the table, it is also can be stated that the correlation is positive.

6. FINDINGS

- There are three levels of Digital Competence among B.Ed. Trainee Teachers (Beginner, Intermediate and Advance). it is shown that most of the Trainee Teachers are in Intermediate level.
- There is no significant difference between Male & Female B.Ed. Trainee Teachers on the basis of Digital Competence. That means Male Trainee Teachers and Female Trainee Teachers are same in respect of Digital Competence.
- There is no significant difference between Male & Female B.Ed. Trainee Teachers on the basis of Teaching Skills. That means Male Trainee Teachers and Female Trainee Teachers are same in respect of Teaching Skills.
- Significant difference has been observed between Govt. Aided & Self- Financed B.Ed. College Trainee Teachers on the basis of Digital Competence. It is observed that Govt. Aided B.Ed. College Trainee Teachers are more digitally competent than Self- Financed B.Ed. College Trainee Teachers.
- Significant difference has been observed between Govt. Aided & Self- Financed B.Ed. College Trainee Teachers on the basis of Teaching Skills. It is observed that Govt. Aided B.Ed. College Trainee Teachers are better on Teaching Skills than Self- Financed B.Ed. College Trainee Teachers.
- There is significant positive relationship between Digital Competence and Teaching Skills of B.Ed. Trainee Teachers. So, Teaching Skills tend to increase when Digital Competence increases and vice versa. Hence, a more Digital Competent B.Ed. Trainee Teachers have more Teaching Skills.

7. DISCUSSION

From the result of the study it shows that most of the Trainee Teachers are in Intermediate level. Above result is consistent with the result of previous study performed by Jemima, G. (2021). From the result it is found that there is no significant difference between male & female B.Ed. Trainee Teachers on the basis of Digital Competence. So, it can be concluded that gender has no effect on Digital Competence. The result there is no difference between male & female B.Ed. Trainee Teachers is consistent with the results of previous studies by Jain, Vandana. & Shetty, Ashwini. S. (2022), Munsu, K. S. (2022), Kack, A. (2019), Katare, D. & Saxena, N. K. (2021), Kuzminska O., Mazorchuk, M., Morze, N., Pavlenko, V. & Prokhorov, A. (2020), Munawaroh, I., Ali, M. & Hernawan, A. H. (2022). But the result not support the results of studies by Jemima, G. (2021), Tabish, S. I. (2023), Vishnu, S., Sathyan, A. R., Sam, A. S., Radhakrishnan, A., Ragavan, S. O., Kandathil, J. V. & Funk, C. (2022). All the above studies result showed that Male are more competent than the female. The result of the study by Vishnu, S., Sathyan, A. R., Sam, A. S., Radhakrishnan, A., Ragavan, S. O., Kandathil, J. V. & Funk, C. (2022) also

suggested that women use technologies for social purposes while men use them more for technical or training purposes. In the present study it is found that there is no significant difference between Male & Female B.Ed. Trainee Teachers on the basis of Teaching Skills. But this result does not support the results studies by Vasantha, S. & Raj, D. U. (2014) and Roy, S. & Banerjee, M. (2021) in which it was found that female have higher Teaching Skills than that of male. According to the relationship, the findings of the present study shows that there is a significant positive relationship between Digital Competence and Teaching Skills which is consistent with the results of studies by Munsi, K. S. (2022) and Mohalik, R. (2021) who found significant positive relationship between Digital Competence and techno-pedagogical skills.

From the result it shown that Digital Competence and Teaching Skills are positively correlated. Hence to improve the quality of teacher education, Trainee teachers should be provided digital technological training programme so that they can digital techno-savvy in delivering their lectures using digital technologies.

8. CONCLUSION

The study shows that the level of Digital Competence and Teaching Skills of Trainee Teachers are moderate in nature. This study gives an overall picture of the research work, that consisting of the major findings, discussion, significance of the study, educational implication of the study, and suggestions for further research which is the goal to be reached. The present study is sure to provide insights into the field of teacher education and the findings of the study can serve as database for further research.

Educational implications of the Study

On the basis of major findings of the study, it is clear that there is a need to take some measures to intensify proper implementation of digital technology in teacher education.

- This study will help policy maker and teacher educators to take care of these areas and more emphasis should be given to the development of Digital Competence, Teaching Skills. B.Ed. Trainee Teachers Practical classes must be emphasized in the curriculum of the B.Ed. Trainee Teachers rather than theory papers.
- Various workshops, symposiums, seminar, webinars, conferences, hands-on training and skill development programmes will surely help to deal with the professional growth of teacher.
- Educational institutions should make provision for technical assistance to teachers. Institutions can appoint a full time or part time assistance who is technically sound, capable of orienting the teachers time to time and provide assistance whenever required.
- It also helps the administrators to prepare digital skill enhancement programme for teacher educators so they can effectively manage the changes in sound knowledge and technological changes in the world.
- It also helps to provide more support to both pre-service as well as in-service trainings, guidance and counselling programs, refresher courses and exchange programs with other good institutions may also be well organized.
- It also helps the B.Ed. prospective teachers to update their digital knowledge and teaching skills. The Trainee Teachers should be able to use effectively the available digital aids in teaching and learning.
- It will help the governing bodies to provide necessary infrastructural facilities like adequate virtual classroom, digital computers, Wi-Fi facility, Speed of internet, inverters or UPS so as to provide uninterrupted power supply in the teacher training institutions for smooth functioning.
- It will help to plan well defined education policy integration digital technology with different levels of teaching-learning process.

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Abbreviations

NEP- National Education Policy

B.Ed.- Bachelor of Education

ICT- Information & Communication Technology

DCAQ- Digital Competence Assessment Questionnaire

SPSS: Statistical Package for the Social Sciences

S.D.-Standard Deviation

M- Mean