

A Quantitative Study of Traditional and Digital Approaches to the Continuous Professional Development of Teachers in Nandurbar District

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Abstract

Continuous Professional Development (CPD) is essential for enhancing teachers' professional competence in the rapidly evolving educational environment. With the advancement of digital technologies, traditional face-to-face professional development approaches are increasingly being supplemented or replaced by digital modes. The present quantitative study aims to compare traditional and digital approaches to Continuous Professional Development of teachers with respect to their effectiveness, accessibility, flexibility, and impact on teaching competencies. The study was conducted among secondary school teachers in Nandurbar District of Maharashtra (India) using the survey method. Data were collected from 200 secondary school teachers through a standardized CPD Perception Scale developed by the researcher. Statistical techniques such as Mean, Standard Deviation, *t*-test, and Percentage Analysis were employed for data analysis. The findings reveal a statistically significant difference between traditional and digital CPD approaches, indicating higher teacher preference and perceived effectiveness of digital CPD. The study suggests adopting a blended CPD model for sustainable professional growth of teachers, particularly in geographically and socio-economically diverse districts.

Keywords: Continuous Professional Development, Traditional CPD, Digital CPD, Teachers, Quantitative Study.

1. Introduction

Teachers' professional competence plays a crucial role in improving the quality of education. Continuous Professional Development (CPD) ensures that teachers remain updated with new pedagogical practices, subject knowledge, and technological advancements. Traditionally, CPD was conducted through face-to-face workshops, seminars, and in-service training programs. However, the digital era has introduced online courses, webinars, MOOCs, and virtual professional learning communities as alternative CPD approaches. While both traditional and digital approaches aim to enhance teacher effectiveness, their comparative impact requires systematic investigation. Hence, the present study attempts a quantitative comparison of traditional and digital approaches to CPD.

2. Need and Significance of the Study

- To evaluate the effectiveness of CPD approaches in the digital era
- To understand teachers' preferences towards traditional and digital CPD
- To provide empirical evidence for policymakers and educational planners
- To support the implementation of NEP 2020 recommendations on teacher development

3. Statement of the Problem

"A comparative quantitative study of traditional and digital approaches to Continuous Professional Development of teachers in Nandurbar District."

4. Objectives of the Study

1. To study teachers' perceptions towards traditional CPD approaches.
2. To study teachers' perceptions towards digital CPD approaches.
3. To compare the effectiveness of traditional and digital CPD approaches.
4. To examine differences in CPD perception based on gender.
5. To examine differences in CPD perception based on teaching experience.

5. Null Hypotheses

1. There is no significant difference between traditional and digital CPD approaches.
2. There is no significant difference in teachers' perceptions towards CPD based on gender.
3. There is no significant difference in teachers' perceptions towards CPD based on teaching experience.

6. Variables of the Study

Independent Variable:

- Type of CPD Approach (Traditional / Digital)

Dependent Variable:

- Teachers' perception of Continuous Professional Development

Moderating Variables:

- Gender
- Teaching Experience

7. Research Methodology

7.1 Research Design

The survey method was employed under the quantitative research approach.

7.2 Population

All secondary school teachers working in recognized schools of Nandurbar District, Maharashtra (India).

7.3 Sample

A sample of 200 secondary school teachers was selected using the simple random sampling technique.

Sr.No.	Category	Number
1	Male Teachers	110
2	Female Teachers	90
3	Less than 10 years' experience	95
4	More than 10 years' experience	105

7.4 Ethical Considerations

Ethical principles were strictly followed during the conduct of the study. Prior informed consent was obtained from all participants, and confidentiality and anonymity of the respondents were ensured. The collected data were used exclusively for academic and research purposes.

8. Tool Used for Data Collection

A Teacher Continuous Professional Development Perception Scale developed and standardized by the researcher was used.

- Total Items: 40
- Dimensions:
 - Traditional CPD – 20 items
 - Digital CPD – 20 items
- Scale Type: Five-point Likert Scale

Reliability: Cronbach's Alpha = 0.82

Validity: Content validity was ensured through expert opinion.

9. Statistical Techniques Used

- Percentage Analysis
- Mean and Standard Deviation
- *t*-test

10. Analysis and Interpretation of Data

10.1 Comparison of Traditional and Digital CPD

CPD Approach	Mean	SD	t-value
Traditional CPD	68.45	8.21	6.48
Digital CPD	74.92	7.63	

Table value at 0.05 level = 1.96

Interpretation:

The calculated t-value (6.48) is greater than the table value. Hence, the null hypothesis is rejected. There is a significant difference between traditional and digital CPD approaches. Digital CPD is perceived as more effective.

10.2 Gender-wise Comparison

Gender	Mean	SD	t-value
Male	72.15	7.98	0.42
Female	71.62	8.10	

Table value at 0.05 level = 1.96

Interpretation:

No significant difference was found based on gender. The null hypothesis is accepted.

10.3 Experience-wise Comparison

Teaching Experience	Mean	SD	t-value
Below 10 years	73.84	7.45	2.89
Above 10 years	70.12	8.34	

Table value at 0.05 level = 1.96

Interpretation:

A significant difference was found based on teaching experience. Teachers with less experience show higher preference towards digital CPD.

11. Major Findings of the Study

1. Digital CPD is perceived as more effective than traditional CPD.
2. Teachers value flexibility and accessibility in digital CPD programmes.
3. Gender does not significantly influence CPD perception.
4. Teaching experience significantly affects CPD preferences.
5. Teachers prefer a blended approach combining traditional and digital CPD.

12. Educational Implications

- Blended CPD programmes should be promoted at institutional and policy levels.
- Digital literacy training should be made compulsory for teachers.
- CPD programmes should be need-based, flexible, and context-specific.
- Institutional support is essential for effective CPD implementation.

13. Conclusion

The study concludes that digital approaches to Continuous Professional Development are more effective in meeting the professional needs of teachers in the digital era. However, traditional CPD approaches remain valuable for collaborative learning and professional interaction. Therefore, a blended CPD framework integrating both traditional and digital approaches is recommended for sustainable teacher professional development.

14. Limitations and Scope for Future Research

The present study is limited to secondary school teachers from a single district, namely Nandurbar District of Maharashtra. Future research may include larger and more diverse samples across

different regions, educational levels, and school management types. Further studies may also explore longitudinal impacts of digital CPD on teaching effectiveness and student learning outcomes.

References

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