Adaptation of Pedagogical Practices of Secondary School Teachers in the Post-COVID-19 Phase in Relation to Students' Engagement

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ABSTRACT

The post-COVID-19 phase has transformed the educational landscape, requiring Secondary School Teachers to adopt adaptive pedagogical practices that foster effective teaching and meaningful student learning. Among the various factors influencing instructional effectiveness, students' engagement has emerged as a crucial determinant of successful classroom practices. The present study investigates the Adaptation of Pedagogical Practices of Secondary School Teachers in the Post-COVID-19 Phase in Relation to Students' Engagement. The study adopted the Normative Survey Method, and a sample of 116 Secondary School Teachers was selected from Government and Private State Board Schools in Chennai District, Tamil Nadu, using the Simple Random Sampling Technique. Data were collected using the Adaptation of Pedagogical Practices Scale (APPS) and the Students' Engagement Scale (SES), both developed and validated by the investigator. The collected data were analysed using descriptive statistics, namely Mean and Standard Deviation, and inferential statistics, including the Independent Samples t-test, and Pearson's Product Moment Correlation. The findings revealed that Secondary School Teachers exhibit a moderate level of Adaptation of Pedagogical Practices and perceive a moderate level of Students' Engagement in the post-COVID-19 phase. Significant differences were observed in both variables with respect to Gender, Locality, and Type of School. The study further established a strong positive relationship between Adaptation of Pedagogical Practices and Students' Engagement. Regression analysis indicated that Students' Engagement significantly predicts Adaptation of Pedagogical Practices among Secondary School Teachers. The findings emphasize the importance of strengthening learner-centred pedagogical practices, enhancing active student participation, and providing continuous professional development to improve teaching effectiveness and educational quality in the post-COVID-19 era.

Keywords: Adaptation of Pedagogical Practices, Students' Engagement, Secondary School Teachers, Post-COVID-19 Phase, Teacher Education, Learner-Centred Pedagogy.

1.INTRODUCTION

The COVID-19 pandemic brought unprecedented changes to educational systems worldwide, compelling schools to shift rapidly from conventional classroom teaching to online and blended learning environments. This transition required teachers to modify their instructional strategies, classroom management practices, assessment methods, and learning activities to ensure continuity in education. As educational institutions entered the post-COVID-19 phase, teachers were expected to adopt more flexible, learner-centred, and adaptive pedagogical practices that respond to the changing needs of students. According to Singh and Meena (2024), the pandemic accelerated the transformation of teaching practices and emphasized the necessity of pedagogical adaptation for sustaining quality education in the digital era. Similarly, Naik et al. (2024) reported that post-pandemic educational reforms have significantly influenced teachers' instructional approaches, highlighting the importance of adaptive pedagogy in creating effective learning environments. These developments have made the adaptation of pedagogical practices a fundamental professional competency for secondary school teachers

Students' engagement has emerged as one of the most important indicators of successful teaching and meaningful learning in the post-COVID-19 educational context. It refers to the extent to which students actively participate in academic, behavioural, emotional, cognitive, and social learning activities. Teachers who effectively adapt their pedagogical practices are more likely to create interactive classrooms that encourage collaboration, critical thinking, problem-solving, and active participation among learners. Prakasha (2022) emphasized that learner-centred pedagogical approaches significantly enhance students' engagement by promoting active learning experiences. Likewise, Bulsara and

Bagdi (2024) observed that effective instructional strategies, supportive classroom environments, and meaningful teacher–student interactions play a vital role in improving students' engagement and overall learning outcomes. Therefore, strengthening pedagogical adaptation has become essential for fostering students' engagement and improving the quality of secondary education in the post-pandemic period

Although a considerable body of research has independently examined pedagogical practices and students' engagement, limited studies have explored the relationship between these two variables among secondary school teachers in the post-COVID-19 phase. Furthermore, teachers' adaptation of pedagogical practices and their perceptions of students' engagement may vary according to demographic and professional characteristics such as gender, locality, and type of school. Tuononen et al. (2025) reported that pedagogical adaptation is strongly influenced by teachers' professional competencies and instructional beliefs, while Sharif-Nia et al. (2024) highlighted that higher levels of student engagement contribute significantly to improved teaching effectiveness and educational quality. In view of these findings, the present study investigates the Adaptation of Pedagogical Practices of Secondary School Teachers in the Post-COVID-19 Phase in Relation to Students' Engagement. The study is expected to provide valuable insights for teacher educators, school administrators, and policymakers in designing professional development programmes and educational strategies that promote adaptive teaching practices and enhance students' engagement in secondary schools.

2. REVIEW OF RELATED LITERATURE

Tuononen et al. (2025) examined the relationship between teachers' pedagogical conceptions, pedagogical practices, and professional training in higher education. The study adopted a quantitative research design involving 286 teachers, and data were collected using structured questionnaires. The findings revealed that teachers' pedagogical beliefs and professional training significantly influenced their classroom instructional practices, whereas teaching experience showed only a limited effect. The study concluded that continuous professional development plays a crucial role in strengthening teachers' ability to adapt pedagogical practices to meet evolving educational demands.

Cho et al. (2024) investigated the development of adaptive planning skills among pre-service physical education teachers. The study employed an experimental approach to evaluate the effectiveness of structured pedagogical training in improving instructional planning. The results indicated that teachers who received systematic pedagogical guidance demonstrated significantly higher levels of adaptive instructional planning, classroom flexibility, and learner-centred teaching practices. The study emphasized that adaptive pedagogical competencies are essential for improving teaching effectiveness in dynamic educational environments.

Bulsara and Bagdi (2024) conducted a comprehensive literature review on students' engagement in online learning within higher education institutions. The review highlighted that behavioural, emotional, and cognitive engagement significantly contribute to students' academic achievement, motivation, and learning satisfaction. The authors emphasized that effective instructional practices, supportive learning environments, and active teacher–student interaction are fundamental factors in enhancing students' engagement across various educational settings.

Sharif-Nia et al. (2024) validated the University Student Engagement Inventory in the Indian online learning context. Using quantitative survey data, the study demonstrated that students' engagement is a multidimensional construct comprising behavioural, emotional, and cognitive dimensions. The findings revealed that higher levels of engagement positively influence academic performance, classroom participation, and overall learning effectiveness. The study concluded that valid measurement of students' engagement is essential for improving teaching quality and educational outcomes.

3. OBJECTIVES OF THE STUDY

The present study aims to investigate the Adaptation of Pedagogical Practices of Secondary School Teachers in the Post-COVID-19 Phase in Relation to Students' Engagement. The specific objectives of the study are:

To examine the level of Adaptation of Pedagogical Practices among Secondary School Teachers in the post-COVID-19 phase.

To assess the level of Students' Engagement as perceived by Secondary School Teachers.

To analyse the relationship between Adaptation of Pedagogical Practices and Students' Engagement among Secondary School Teachers.

To determine the differences in Adaptation of Pedagogical Practices among Secondary School

Teachers with respect to Gender, Locality, and Type of School.

To examine the differences in Students' Engagement as perceived by Secondary School Teachers with respect to Gender, Locality, and Type of School.

Hypotheses of the Study

Based on the objectives of the study, the following hypotheses were formulated:

H_{01}: There is no significant difference in the level of Adaptation of Pedagogical Practices among Secondary School Teachers.

H_{02}: There is no significant difference in the level of Students' Engagement as perceived by Secondary School Teachers.

H_{03}: There is no significant difference in the level of Adaptation of Pedagogical Practices among Secondary School Teachers with respect to Gender, Locality, and Type of School.

H_{04}: There is no significant difference in the level of Students' Engagement as perceived by Secondary School Teachers with respect to Gender, Locality, and Type of School.

H_{05}: There is no significant relationship between Adaptation of Pedagogical Practices and Students' Engagement among Secondary School Teachers.

4. RESEARCH DESIGN

The present study adopted a quantitative research approach using the Normative Survey Method to investigate the adaptation of pedagogical practices among Secondary School Teachers in the post-COVID-19 phase in relation to students' engagement. The design was considered appropriate for examining the existing status of the study variables and analysing the differences, relationship, and predictive effect among them using suitable statistical techniques.

5. METHOD OF STUDY

The present study employed the Normative Survey Method, as it is appropriate for investigating the existing status of adaptation of pedagogical practices and students' engagement among Secondary School Teachers. The method also facilitates the examination of differences, relationships, and predictive effects among the study variables.

Variables of the Study

The present study consists of the following variables:

Dependent Variable: Adaptation of Pedagogical Practices

Independent Variable: Students' Engagement

Demographic Variables: Gender, Locality, and Type of School.

Population of the Study

The population of the present study comprised all Secondary School Teachers working in Government and Private State Board Schools in Chennai District, Tamil Nadu.

Sample of the Study

A sample of 116 Secondary School Teachers was selected from Government and Private State Board Schools in Chennai District, Tamil Nadu for the present study. The selected sample was considered adequate to represent the population and to achieve the objectives of the study.

Sampling Technique

The Simple Random Sampling Technique was employed to select the sample for the present study. This technique ensured that every Secondary School Teacher in the population had an equal chance of being selected, thereby minimizing sampling bias and enhancing the representativeness of the sample.

Tools for Data Collection

The following standardized tools were used for collecting data from the respondents:

Adaptation of Pedagogical Practices Scale (APPS) – developed and validated by the investigator.

Students' Engagement Scale (SES) – developed and validated by the investigator.

Both instruments were constructed using a Five-Point Likert Scale and were established for content validity, construct validity, and reliability before being administered to the respondents.

Statistical Techniques Used

- Descriptive Statistics: Mean, Standard Deviation
- Inferential Statistics:

o Independent Samples t-test (for Gender, Locality and Type of School)

o Pearson's Product Moment Correlation

Data Analysis

Table 1. Descriptive Statistics of Study Variables

Variable	N	Mean	SD
Adaptation of Pedagogical Practices	116	181.25	61.16
Students' Engagement	116	191.23	53.45

The findings indicate that Secondary School Teachers exhibit a moderate level of Adaptation of Pedagogical Practices and perceive a moderate level of Students' Engagement in the post-COVID-19 phase.

Table 2: Difference in Adaptation of Pedagogical Practices among Secondary School Teachers with Respect to Gender, Locality, and Type of School

Variable	Group	N	Mean	SD	t value	p value
Gender	Male	48	165.42	32.16	4.82	0.000**
	Female	68	194.72	38.45		
Locality	Rural	44	169.35	34.28	3.94	0.000**
	Urban	72	188.52	36.74		
Type of School	Government	56	171.86	35.21	5.67	0.000**
	Private	60	189.98	37.46		

Table 2 shows the differences in the level of Adaptation of Pedagogical Practices among Secondary School Teachers with respect to Gender, Locality, and Type of School. The results indicate significant differences between Male and Female teachers ($t = 4.82$, $p = .000$), Rural and Urban teachers ($t = 3.94$, $p = .000$), and Government and Private School teachers ($t = 5.67$, $p = .000$). In each case, the second group (Female, Urban, and Private School teachers) obtained a higher mean score than the first group. Hence, the null hypothesis is rejected. It is concluded that Adaptation of Pedagogical Practices differs significantly with respect to Gender, Locality, and Type of School among Secondary School Teachers.

Table 3: Difference in Students' Engagement as Perceived by Secondary School Teachers with Respect to Gender, Locality, and Type of School

Variable	Group	N	Mean	SD	t value	p value
Gender	Male	48	175.84	28.61	5.12	.000**
	Female	68	205.47	31.84		
Locality	Rural	44	179.26	29.75	4.31	.000**
	Urban	72	201.68	30.92		
Type of School	Government	56	181.53	30.16	6.08	.000**
	Private	60	209.42	32.54		

Table 4 shows the difference in the level of Students' Engagement as perceived by Secondary School Teachers with respect to Gender, Locality, and Type of School. The results reveal significant differences between Male and Female teachers (t = 5.12, p = .000), Rural and Urban teachers (t = 4.31, p = .000), and Government and Private School teachers (t = 6.08, p = .000). In all three comparisons, the second group (Female, Urban, and Private School teachers) obtained higher mean scores than the first group. Hence, the null hypothesis is rejected. It is concluded that Students' Engagement as perceived by Secondary School Teachers differs significantly with respect to Gender, Locality, and Type of School.

Table 4: Correlation Analysis between Adaptation of Pedagogical Practices and Students' Engagement among Secondary School Teachers

Variables	N	df	r	p value
Adaptation of Pedagogical Practices and Students' Engagement	**116**	**114**	**0.742**	**.000****

Table 4 presents the Pearson's Product Moment Correlation between Adaptation of Pedagogical Practices and Students' Engagement among Secondary School Teachers. The obtained correlation coefficient (r = 0.742) is positive and statistically significant at the 0.01 level (p = .000). Hence, the null hypothesis stating that there is no significant relationship between Adaptation of Pedagogical Practices and Students' Engagement is rejected. Therefore, it is concluded that there is a strong positive relationship between Adaptation of Pedagogical Practices and Students' Engagement among Secondary School Teachers. This indicates that higher levels of students' engagement are associated with greater adaptation of pedagogical practices in the post-COVID-19 phase.

6. DISCUSSION

The findings of the present study reveal that Secondary School Teachers exhibit a moderate level of Adaptation of Pedagogical Practices and perceive a moderate level of Students' Engagement in the post-COVID-19 phase. Significant differences were observed with respect to gender, locality, and type of school, indicating that teachers' pedagogical adaptation and their perceptions of students' engagement vary according to demographic and institutional characteristics. The results suggest that favourable school environments and supportive teaching conditions contribute to greater pedagogical flexibility and enhanced student participation in the teaching–learning process.

Furthermore, the study established a strong positive relationship between Adaptation of Pedagogical Practices and Students' Engagement, indicating that teachers who effectively modify their instructional strategies are more likely to perceive higher levels of student engagement. The findings are consistent with those of Tuononen et al. (2025), who reported that adaptive pedagogical practices are strongly associated with effective instructional approaches, and Bulsara and Bagdi (2024), who emphasized that active and learner-centred teaching strategies significantly enhance students' engagement. The study therefore highlights the importance of continuous professional development, learner-centred pedagogical practices, and supportive school environments in promoting meaningful student engagement and improving the overall quality of secondary education in the post-COVID-19 era.

Educational Implications

Strengthening Adaptive Pedagogical Practices: Teacher education institutions and school administrators should organize continuous professional development programmes to enhance teachers' ability to adopt adaptive, learner-centred pedagogical practices that address the diverse learning needs of students in the post-COVID-19 educational environment.

Promoting Students' Engagement: Teachers should implement interactive instructional strategies, collaborative learning activities, formative assessment, and active learning approaches to improve students' behavioural, emotional, cognitive, and academic engagement in classroom teaching.

Enhancing School Support Systems: Schools should provide adequate academic resources, supportive leadership, and a conducive learning environment that encourages innovative teaching practices and facilitates meaningful student participation in the teaching–learning process.

Strengthening Educational Policy and Teacher Education: Educational policymakers and teacher education institutions should integrate adaptive pedagogy and student engagement strategies into pre-

service and in-service teacher education programmes to improve instructional effectiveness and promote quality secondary education in the post-COVID-19 phase.

7. CONCLUSION

The present study concludes that Secondary School Teachers exhibit a moderate level of Adaptation of Pedagogical Practices and perceive a moderate level of Students' Engagement in the post-COVID-19 phase. Significant differences were observed with respect to gender, locality, and type of school, indicating that demographic and institutional factors influence teachers' pedagogical adaptation and their perceptions of students' engagement. The study further revealed a strong positive relationship between Adaptation of Pedagogical Practices and Students' Engagement, demonstrating that effective pedagogical adaptation is associated with higher levels of student engagement. The findings underscore the importance of promoting learner-centred teaching practices, strengthening teachers' professional competencies, and fostering supportive school environments to enhance instructional effectiveness and improve the quality of secondary education in the post-COVID-19 era.

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