

A Study of Pedagogical Practices and Teaching Effectiveness in Commerce Education with Special Reference to College Students in Rajasthan

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Abstract: Pedagogical practices play a crucial role in enhancing teaching effectiveness and improving students' learning experiences in higher education. The present study examines the pedagogical practices and teaching effectiveness in commerce education with special reference to college students in Rajasthan. Primary data were collected from 200 commerce students studying in government and private colleges through a structured questionnaire. The findings revealed that students preferred smart classrooms, practical/problem-solving sessions, and continuous internal assessment over traditional lecture-based teaching and examination methods. The respondents expressed favorable perceptions of pedagogical practices, particularly regarding the availability of study materials, constructive feedback, practical examples, and classroom interaction. The study concludes that technology-supported, practical, and student-centered pedagogical approaches significantly contribute to improving teaching effectiveness, learning motivation, analytical skills, and overall student satisfaction in commerce education.

Keywords: Commerce education, pedagogical practices, teaching effectiveness, student-centred learning, higher education, Rajasthan.

1. Introduction: -

Education plays a vital role in developing the knowledge, skills, and competencies required for personal and professional success (Cheng, 2025). In higher education, the quality of teaching largely depends on the pedagogical practices adopted by teachers, which directly influence students' engagement, academic performance, and overall learning experience (Villocino and Villocino, 2025). Pedagogy refers to the methods, strategies, and techniques used by teachers to facilitate effective learning. With the rapid advancement of educational technologies and the implementation of the National Education Policy (NEP) 2020, higher education institutions are increasingly shifting from traditional teacher-centred instruction towards student-centred, technology-enabled, and experiential learning approaches (Maiti et

al., 2024).

Commerce education is an important discipline that prepares students for careers in business, finance, accounting, management, entrepreneurship, and related fields. Owing to the practical and dynamic nature of commerce, effective teaching requires the integration of innovative pedagogical practices such as smart classrooms, case studies, problem-solving activities, collaborative learning, and continuous assessment (Coutinho et al., 2020; Acharya et al., 2024). These approaches not only enhance conceptual understanding but also promote critical thinking, analytical ability, communication skills, and practical application of knowledge. Consequently, evaluating the effectiveness of pedagogical practices has become essential for improving the quality of commerce education and ensuring that students acquire the competencies required in a rapidly changing professional environment.

Teaching effectiveness refers to the extent to which instructional practices facilitate students' learning, motivation, participation, and academic achievement (Aina et al., 2015). Effective teaching is characterised by clear explanations, active classroom interaction, timely feedback, appropriate use of learning resources, and the integration of technology to create an engaging learning environment. Students' perceptions of these practices provide valuable insights into the strengths and limitations of the existing teaching-learning process and can assist educational institutions in improving instructional quality (Tamboli et al., 2025).

Although several studies have examined innovative teaching methods and pedagogical practices in higher education, limited research has focused specifically on commerce students' perceptions of pedagogical practices and teaching effectiveness in Rajasthan. Considering the growing emphasis on learner-centred education and quality assurance in higher education, it is important to understand students' preferences and experiences regarding teaching methods and assessment practices. Therefore, the present study aims to examine the pedagogical practices adopted in commerce education and evaluate their effectiveness from the perspective of college students studying in government and private colleges across Rajasthan.

2. Research Methodology: -

2.1.Study Area:

The present study was conducted in the state of Rajasthan, India, focusing on commerce students studying in college. Rajasthan is one of the largest states in the country and has a diverse higher education system comprising government and private colleges that offer undergraduate and postgraduate commerce education. The study included students from both

government and private colleges to obtain a balanced understanding of pedagogical practices and teaching effectiveness across different institutional settings. Commerce students were selected as the target population because the study specifically examines teaching practices and learning experiences in commerce education.

2.2.Data Collection:

The study is based on primary data collected through a structured questionnaire. The questionnaire was designed to assess students' perceptions of pedagogical practices and teaching effectiveness in commerce education. It comprised two sections: the first section collected demographic information, including gender, age, year of study, and type of college, while the second section measured students' preferences regarding teaching methods and assessment modes, along with their perceptions of pedagogical practices and teaching effectiveness using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). A total of 200 commerce students from selected government and private colleges in Rajasthan participated in the survey. The respondents were selected using sampling, considering the accessibility and willingness of students to participate. Prior to data collection, the purpose of the study was explained to the participants, and their responses were collected anonymously to ensure confidentiality and encourage unbiased opinions.

2.3.Data Analysis:

The collected data were coded and analyzed using IBM SPSS ver. 26. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the demographic characteristics of respondents, preferred teaching methods, preferred assessment modes, and students' perceptions of pedagogical practices and teaching effectiveness. The internal consistency of the measurement scales was assessed using Cronbach's alpha. Furthermore, a one-sample t-test was employed to examine whether the mean scores of pedagogical practices and teaching effectiveness differed significantly from the neutral value of the Likert scale (test value = 3). The statistical significance of the results was evaluated at the 5% significance level ($p < 0.05$).

3. Result and Discussion: -

The results of the study are presented and discussed in this section based on the responses collected from commerce students studying in government and private colleges across Rajasthan. The analysis includes the demographic profile of the respondents, their

preferences regarding teaching methods and assessment modes, and their perceptions of pedagogical practices and teaching effectiveness. Descriptive and inferential statistical techniques were employed to interpret the findings and examine the effectiveness of the prevailing pedagogical practices in commerce education. Table 1 presents the demographic characteristics and preferred teaching practices of the respondents. A total of 200 commerce students from government and private colleges in Rajasthan participated in the study.

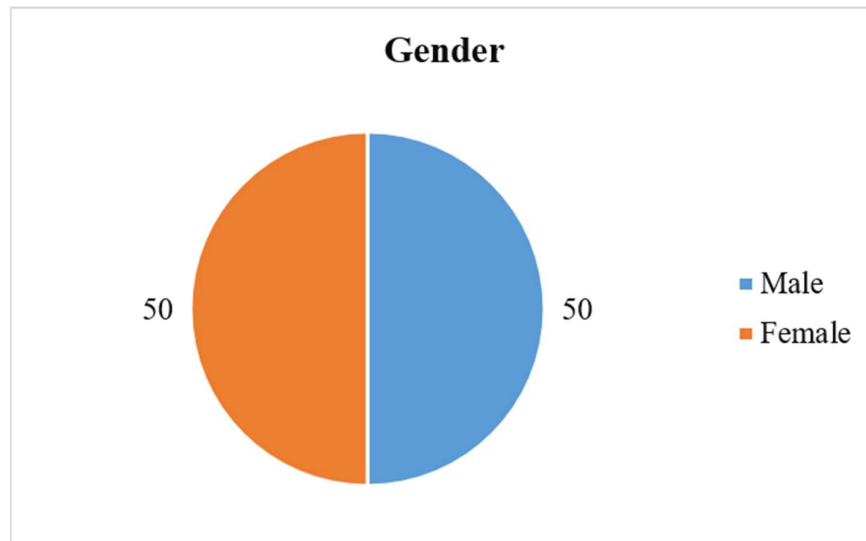
Table 1: Demographic Profile and Preferred Teaching Practices of the Respondents

Variable	Option	Frequency	Percent
Gender	Male	100	50
	Female	100	50
	Total	200	100
Age Group	Below 18	10	5
	18–20	100	50
	21–23	80	40
	Above 23	10	5
	Total	200	100
Year of Study	First	50	25
	Second	50	25
	Third	50	25
	Final/PG	50	25
	Total	200	100
Type of College	Government	120	60
	Private	80	40
	Total	200	100
Preferred Teaching Method	Traditional Lecture	20	10
	Smart Classroom	70	35
	Case Study	40	20
	Group Discussion	20	10
	Practical/Problem-solving	50	25
	Total	200	100
Preferred Assessment Mode	Written Exam	30	15
	Online Exam	20	10
	Open-book Exam	20	10
	Practical/Project	50	25
	Continuous Internal Assessment	80	40
	Total	200	100

The gender distribution was balanced, with 100 male (50%) and 100 female (50%) respondents, ensuring equal representation and minimizing gender-related bias in the

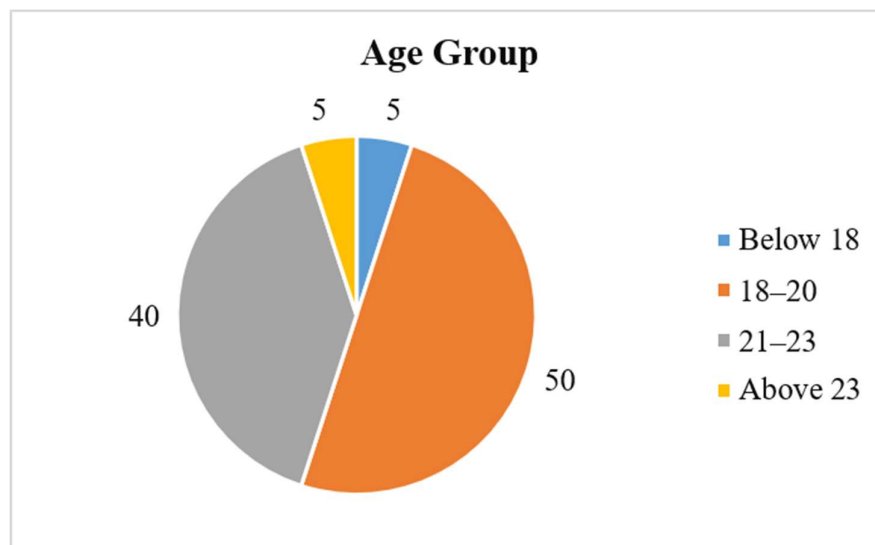
findings.

Fig. 1: Distribution of Respondents by Gender

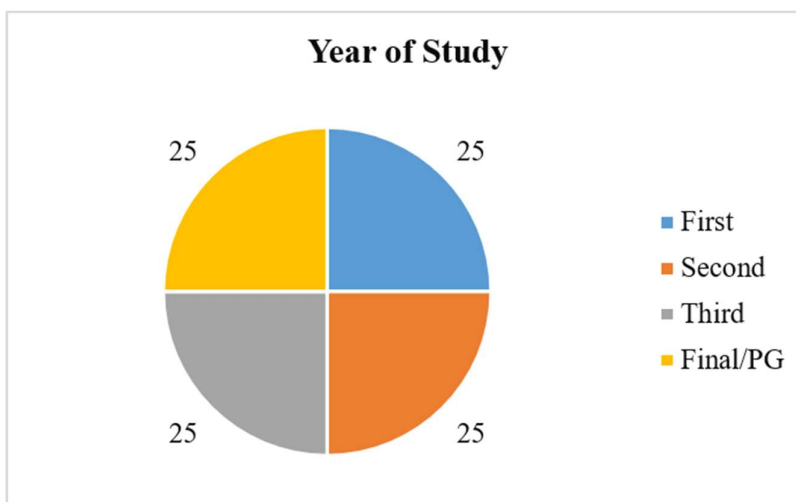


Regarding age, the majority of respondents belonged to the 18–20 years age group (50%), followed by 21–23 years (40%), while only 5% of the respondents were below 18 years and another 5% were above 23 years (figure 2). This indicates that the study primarily represents undergraduate students, who constitute the major proportion of commerce enrolments in higher education institutions.

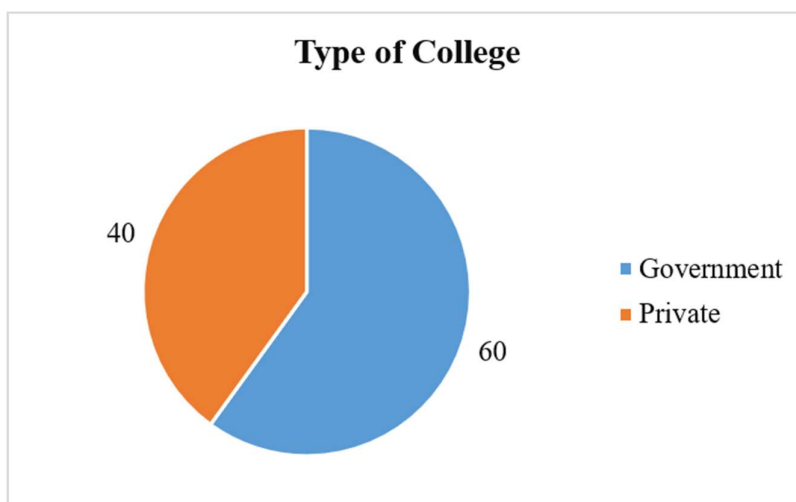
Fig. 2: Distribution of Respondents by Age Group



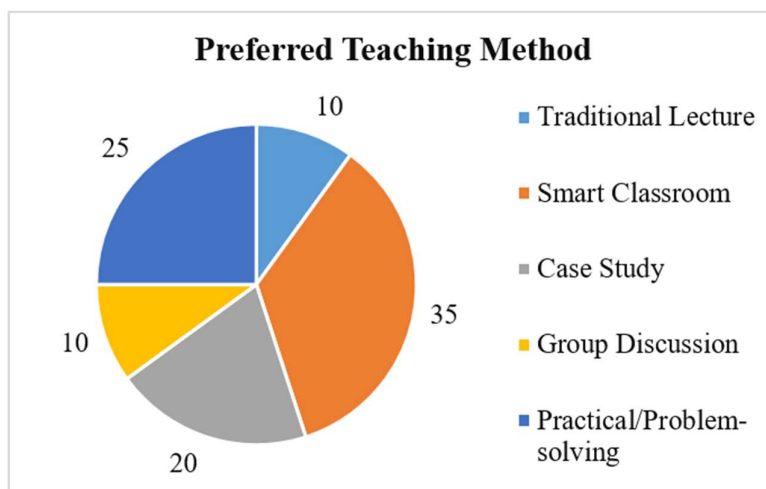
The respondents were equally distributed across the different years of study, with 25% each from the first year, second year, third year, and final year/postgraduate programmes (figure 3). Such a balanced distribution provides perspectives from students at different academic stages and strengthens the representativeness of the findings.

Fig. 3: Distribution of Respondents by Year of Study

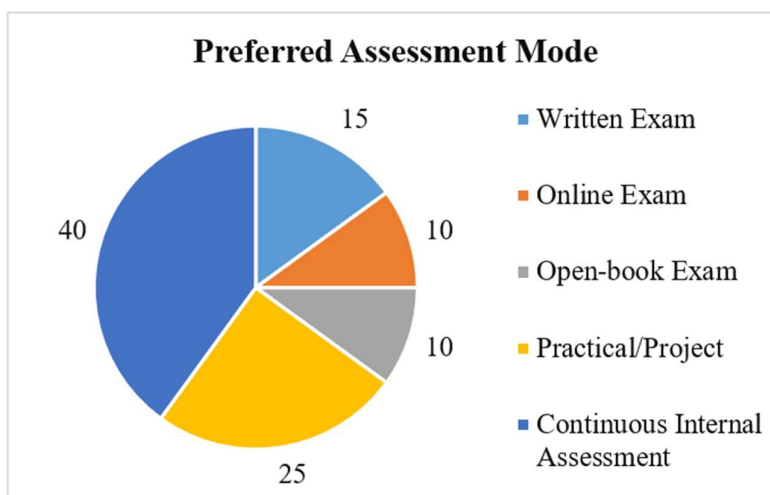
With respect to the type of institution, 60% of the respondents were from government colleges, while 40% belonged to private colleges (figure 4). This distribution reflects the greater enrolment of students in government colleges while also incorporating views from private institutions, thereby providing a broader understanding of commerce education in Rajasthan.

Fig. 4: Distribution of Respondents by Type of College

Students' preferences regarding teaching methods revealed that Smart Classroom teaching using PowerPoint presentations and multimedia was the most preferred instructional approach, chosen by 35% of the respondents (figure 5). This was followed by Practical/Problem-solving sessions (25%) and the Case Study method (20%). In contrast, Traditional Lecture and Group Discussion methods were each preferred by only 10% of the respondents. These findings indicate that students favour interactive, technology-supported, and application-oriented teaching approaches over conventional lecture-based instruction.

Fig. 5: Preferred Teaching Methods among Respondents

Regarding the preferred mode of assessment, Continuous Internal Assessment emerged as the most favoured evaluation method, selected by 40% of the respondents (figure 6). Practical/Project-based assessment was preferred by 25%, followed by Written Examinations (15%). Online examinations and Open-book examinations were each preferred by 10% of the respondents. The findings suggest that students prefer continuous and practical forms of assessment that evaluate learning throughout the semester rather than relying solely on end-semester examinations.

Fig. 6: Preferred Modes of Assessment among Respondents

The descriptive statistics of pedagogical practices and teaching effectiveness are presented in Table 2. The mean scores for all pedagogical practice items ranged from 3.90 to 4.20, indicating that students generally agreed that teachers employed effective pedagogical practices in commerce education. Among the pedagogical practices, teachers providing useful study materials and learning resources received the highest mean score (Mean = 4.20; SD =

0.68), indicating that students highly appreciated the availability of supportive learning resources. Similarly, teachers providing constructive feedback recorded a high mean score (Mean = 4.15; SD = 0.66), suggesting that timely and meaningful feedback positively contributed to students' learning experiences. Students also expressed favorable opinions regarding the use of practical examples (Mean = 4.10; SD = 0.70), encouragement to ask questions (Mean = 4.10; SD = 0.77), and timely completion of the syllabus (Mean = 4.10; SD = 0.77). The comparatively lower mean scores were observed for teachers explaining concepts clearly (Mean = 3.90; SD = 0.95) and teachers effectively using digital teaching tools (Mean = 3.95; SD = 0.81). Although these values still indicate agreement, they suggest that there remains scope for improving conceptual clarity and integrating digital technologies more effectively into classroom teaching. The standard deviation values ranging from 0.66 to 0.95 indicate moderate variability in students' perceptions, reflecting a reasonable diversity of opinions among respondents. Students also reported highly positive perceptions regarding teaching effectiveness. The highest mean scores were recorded for teaching methods improving students' understanding and overall satisfaction with teaching, both with a mean score of 4.25. Furthermore, students agreed that teaching methods motivated learning (Mean = 4.20) and enhanced analytical and problem-solving skills (Mean = 4.20). The statement "Teaching methods make learning interesting" also received a favorable response with a mean score of 4.15. Overall, the findings demonstrate that students perceive the existing teaching practices as effective in facilitating learning and improving academic engagement.

Table 2: Descriptive Statistics of Pedagogical Practices and Teaching Effectiveness

Descriptive Statistics	Mean	Std. Deviation
Teachers explain concepts clearly	3.9	0.94576549
Teachers encourage classroom participation	4.05	0.806693107
Teachers use practical examples	4.1	0.70175659
Teachers effectively use digital teaching tools	3.95	0.806693107
Teachers provide useful study materials	4.2	0.679934966
Teachers encourage students to ask questions	4.1	0.770042092
Teachers complete the syllabus on time	4.1	0.770042092
Teachers provide constructive feedback	4.15	0.655475584
Teaching methods improve understanding	4.25	0.699964105
Teaching methods motivate learning	4.2	0.679934966
Teaching enhances analytical skills	4.2	0.750209351
Teaching methods make learning interesting	4.15	0.794136806
Overall satisfaction with teaching	4.25	0.624057078

The internal consistency of the questionnaire was examined using Cronbach's alpha. The Pedagogical Practices Scale consisting of eight items yielded a Cronbach's alpha value of 0.924, while the Teaching Effectiveness Scale comprising five items recorded a Cronbach's alpha of 0.909. Cronbach's alpha values greater than 0.90 indicate excellent internal consistency. Therefore, both scales demonstrated a high degree of reliability, confirming that the questionnaire items consistently measured the intended constructs. These results indicate that the instrument is suitable for further statistical analysis and interpretation.

A one-sample t-test was conducted using the neutral point of the Likert scale (Test Value = 3) to determine whether students' perceptions of pedagogical practices were significantly positive. The results presented in Table 3 reveal that all pedagogical practice items recorded mean scores significantly higher than the test value ($p < 0.001$). The highest mean difference was observed for teachers providing useful study materials and learning resources (Mean Difference = 1.20; $t = 24.959$; $p < 0.001$), followed by teachers providing constructive feedback (Mean Difference = 1.15; $t = 24.812$; $p < 0.001$). Similarly, students positively rated teachers' use of practical examples, encouragement of questioning, and timely completion of the syllabus, each exhibiting statistically significant positive differences from the neutral value. Even the comparatively lower-rated aspects, namely teachers explaining concepts clearly ($t = 13.458$; $p < 0.001$) and effective use of digital teaching tools ($t = 16.654$; $p < 0.001$), were found to be significantly above the neutral level. Overall, the results indicate that students hold significantly positive perceptions regarding the pedagogical practices adopted by teachers in commerce education.

Table 3: One-Sample t-test Results for Pedagogical Practices

One-Sample Test	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Teachers explain concepts clearly	13.4577 9921	19 9	8.81546E -30	0.9	0.768123988	1.031876012
Teachers encourage classroom participation	18.4075 4839	19 9	7.71097E -45	1.05	0.937516016	1.162483984
Teachers use practical examples	22.1677 2797	19 9	1.17428E -55	1.1	1.002148195	1.197851805
Teachers effectively use digital teaching tools	16.6544 4855	19 9	1.40678E -39	0.95	0.837516016	1.062483984
Teachers provide useful study materials	24.9590 9697	19 9	3.31053E -63	1.2	1.105190967	1.294809033
Teachers encourage students to ask questions	20.2019 4654	19 9	4.33836E -50	1.1	0.992626575	1.207373425
Teachers complete the syllabus on time	20.2019 4654	19 9	4.33836E -50	1.1	0.992626575	1.207373425
Teachers provide constructive feedback	24.8116 8844	19 9	8.09005E -63	1.15	1.058601544	1.241398456

The one-sample t-test results for teaching effectiveness are presented in Table 4. All five teaching effectiveness statements recorded mean scores significantly greater than the neutral value ($p < 0.001$), demonstrating that students perceived teaching practices to be highly effective. The highest t-value was obtained for overall satisfaction with teaching ($t = 28.327$; Mean Difference = 1.25; $p < 0.001$), indicating a high level of satisfaction among the respondents. Similarly, teaching methods improving understanding also recorded a mean difference of 1.25 ($t = 25.255$; $p < 0.001$). Students further agreed that teaching methods effectively motivated learning ($t = 24.959$; $p < 0.001$), enhanced analytical and problem-solving skills ($t = 22.621$; $p < 0.001$), and made learning more interesting ($t = 20.479$; $p < 0.001$). The confidence intervals for all variables were entirely above zero, further confirming that the observed mean differences were statistically significant. These findings suggest that the pedagogical approaches adopted by teachers have a substantial positive influence on students' learning experiences, motivation, analytical abilities, and overall satisfaction.

Table 4: One-Sample t-test Results for Teaching Effectiveness

One-Sample Test	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Teaching methods improve understanding	25.25510865	199	5.54918E-64	1.25	1.152398136	1.347601864
Teaching methods motivate learning	24.95909697	199	3.31053E-63	1.2	1.105190967	1.294809033
Teaching enhances analytical skills	22.62110266	199	6.52664E-57	1.2	1.09539202	1.30460798
Teaching methods make learning interesting	20.47941343	199	6.90861E-51	1.15	1.039266847	1.260733153
Overall satisfaction with teaching	28.32700752	199	9.42176E-72	1.25	1.162982489	1.337017511

The findings of the present study indicate that commerce students in Rajasthan have positive perceptions of pedagogical practices and teaching effectiveness, with a clear preference for technology-enabled, practical, and student-centered teaching approaches over traditional lecture-based instruction. Students also appreciated clear explanations, practical examples, constructive feedback, and continuous internal assessment. These findings are consistent with Coutinho et al. (2020), who emphasized that innovative and student-centered pedagogy, supported by continuous assessment, enhances the quality of teaching and learning. Similarly, Ugwunwoti and Ogonnia (2022) and Acharya et al. (2024) reported that collaborative and interactive teaching approaches improve students' engagement, understanding, and learning outcomes. The preference for smart classrooms, case studies, and practical learning in the present study also supports the observations of Anjaneyulu (2018),

who highlighted the importance of innovative pedagogical tools in management education. Furthermore, the positive perception of digital teaching practices aligns with the findings of Marie (2021), who demonstrated that blended learning enhances students' academic performance and motivation. However, the present findings differ from those of Kumar (2023), who reported that teachers continued to prefer traditional teaching methods and descriptive examinations, particularly at the undergraduate level. In contrast, the students in the present study showed a stronger preference for smart classrooms, practical learning, and continuous internal assessment. Likewise, while Noguera et al. (2024) found limited integration of digital tools and more critical student perceptions, the respondents in the present study generally expressed favorable views regarding digital teaching practices and overall teaching effectiveness. Overall, the findings support the growing shift towards student-centered, technology-supported, and experiential learning approaches, highlighting their positive contribution to students' understanding, motivation, analytical skills, and overall satisfaction with commerce education.

4. Conclusion: -

The present study examined the pedagogical practices and teaching effectiveness in commerce education from the perspective of college students in Rajasthan. The findings indicate that students hold favorable perceptions regarding the pedagogical practices adopted by teachers and consider them effective in enhancing their learning experiences. Students showed a clear preference for technology-enabled teaching methods, practical/problem-solving sessions, and continuous internal assessment, highlighting the increasing demand for interactive and learner-centered approaches in commerce education. The descriptive statistics and one-sample t-test results demonstrated that teachers effectively support students through clear instruction, practical examples, constructive feedback, timely completion of the syllabus, and adequate learning resources. The high Cronbach's alpha values further confirmed the reliability of the measurement scales. Overall, the findings suggest that effective pedagogical practices positively influence students' understanding, motivation, analytical and problem-solving skills, and overall satisfaction with teaching. The study concludes that commerce education in higher educational institutions should continue to strengthen the adoption of student-centered, technology-supported, and experiential teaching strategies while promoting continuous assessment and active classroom participation. Such practices can further enhance teaching effectiveness and contribute to improved learning outcomes among commerce students. Future studies may include larger and more diverse

samples from different states and compare students' and teachers' perspectives to obtain a more comprehensive understanding of pedagogical effectiveness in higher education.

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