Empirical analysis of study materials preferences and usage trends in educational institutions

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Abstract

Access to affordable and effective study materials is essential for enhancing students' academic performance and learning outcomes. This study empirically analyses the demand and choice of study materials among 200 students across different educational levels using a structured survey and data visualisations through Microsoft Power BI. The survey explored key aspects such as frequency of purchasing study materials, preferred formats, influencing factors, expenditure patterns, sources, cost-effectiveness perceptions, accessibility challenges and perceived effectiveness in exam preparation. Results revealed that 41.5% of students occasionally buy study materials, with printed notes (39%) being the most preferred format, followed by e-notes and Xerox copies (23.5% each). Convenience (33.5%) and availability (26%) emerged as the primary factors influencing choices, while most students (71%) reported spending less than ₹300 per month. Books (47.5%) remain the most relied-upon source, though AI tools are gaining significance (31.5%). While 74.5% of respondents viewed e-notes as more cost-effective than Xerox copies, 64.5% faced digital access challenges due to internet or device limitations. Perceptions of Xerox shop pricing were divided, with 42.5% considering charges unfair. For exam preparation, class notes (37%) and books (34.5%) were preferred over AI tools (28.5%). The findings underscore the coexistence of traditional and digital resources, with students' choices shaped by convenience, affordability, and exam relevance. The study concludes that a balanced strategy incorporating both digital and class notes is crucial for effective learning.

Key words: Study materials, Student preferences, Digital learning, Cost-effectiveness, Exam preparation

1. Introduction

The pursuit of education is closely tied to the availability and accessibility of study materials, which act as a vital bridge between classroom instruction and independent learning (Szapkiw *et al.,* 2012). For students, especially in higher education, the choice of study resources is not merely a matter of convenience but one that directly influences their learning behaviour, exam preparation strategies and overall academic performance (Naz *et al.,* 2024). Study materials, whether in the form of textbooks, photocopied notes, e-books, online lecture slides or digital repositories, serve as the foundation upon which knowledge is gathered, updated and used in tests and practical applications (Hossain *et al.,* 2024).

Historically, students have relied largely on printed materials, such as textbooks and Xerox copies of lecture notes that they purchased from stores close to educational institutions (Divya *et al.,* 2020). These alternatives are growing in popularity due to their tangible nature, small-unit affordability and simplicity of use without the need for digital devices or internet access. In countries like India, photocopy shops near college campuses still remain a lifeline for many students, especially those who need affordable study materials or don't always have reliable access to technology (Mahendraprabu *et al.,* 2022). During the pandemic covid-19season all over the world, students are increasingly embracing the use of e-books, e-notes and other digital learning tools. These resources offer clear advantages: they're portable, simple to store and search through and often come at a lower cost than printed materials (Amirtharaj et al., 2023).

Many students consider e-notes to be more practical and cost-effective, but barriers such as limited access to high-speed internet, lack of suitable devices, screen fatigue and a preference for reading on paper continue to slow widespread adoption (Millar and Schrier, 2015). Studies suggest that students still turn to printed or photocopied materials during intensive exam preparation, often because they are easier to annotate, involve fewer distractions and allow for better concentration (Senthuran *et al.,* 2023). Simultaneously, many perceive digital resources as the more cost-effective choice (Sidabutar et al., 2022). As a result, demand for study materials has taken a hybrid form, shaped by context, financial constraints and personal preferences. In this space, traditional and digital formats coexist rather than replace one another (Peras, 2023).

The monthly supply expenditure for a student will depend substantially on their programme level, their curriculum and the availability of free or low-cost options. The issue of

what is fair to charge at the campus Xerox shops has long been an issue of debate, revealing once again just how sensitive students are to the costs of study options. For example, students use online study sources and may view these as relatively cheaper options; however, they can also lead to unseen costs, e.g., repairs or replacement costs for devices, data charges, subscriptions, etc. All these monetary aspects are related to student demand for and use of academic resources.

In terms of accessibility and affordability, the viability of formats to facilitate exam preparation and learning outcomes is an additional factor that influences student choice. Some students argue that printed notes enhance their ability to concentrate and retain information better than using a computer or printing on paper, while some others prefer the access and often convenience of accessing digitally. Psychological studies comparing reading from paper and from screens have shown a difference when it comes to comprehension and recall; so while no one format is better than the other in terms of information, student learning style has more influence on preference than the cost or accessibility (Jemuel Pepito et al., 2025) (Eden and Eshet, 2012). This study is designed to examine such preferences in detail. With a guided questionnaire, the survey tries to determine why students use Xerox notes or e-notes, how they perceive them as useful and constraining and the extent to which each of them is accountable for academic success (Bhebie *et al.,* 2025). The survey focuses on several key dimensions: (i) the frequency of purchasing study materials, (ii) preferred formats (print vs. digital), (iii) key factors influencing choice, (iv) average monthly expenditure, (v) reliance on different sources, (vi) perceptions of cost-effectiveness of e-notes vs. Xerox copies, (vii) challenges in accessing e-notes, (viii) perceptions of Xerox shop pricing and (ix) the perceived effectiveness of different formats in exam preparation. By analysing these dimensions, this study aims to provide a deeper understanding of the use of learning resources among students, as well as identify both challenges and opportunities (Senthuran, 2023).

These findings are expected to benefit educators, academic administrators and policymakers by informing decisions related to the provision of affordable, accessible and effective study resources. They may also help private providers (such as campus Xerox shops and digital resource platforms) understand student expectations and align their services accordingly. In the long term, such insights can contribute to improving students learning experiences, reducing financial strain and enhancing academic performance (Professor, 2023).

2. Materials and Methods

2.1. Survey research design

The present study follows a descriptive survey research design to empirically examine the demand and choice of study materials among different levels of students in educational institutions. The survey method was selected because it allows for the systematic collection of quantitative and qualitative data regarding students' preferences, purchasing behaviours, expenditure patterns or perceptions of both traditional and digital learning resources. The study emphasises the analysis of students' choices across different study material formats, sources or influencing factors.

2.2. Data Collection

A structured questionnaire was designed to capture information from respondents. The questionnaire consisted of both close-ended and multiple-choice questions that aligned with the objectives of the study (Mahendraprabu *et al.,* 2022). The following key aspects were covered: Frequency of purchasing study materials, preferred format of study materials, main factors influencing, monthly expenditure on study materials, primary sources of study materials, cost-effectiveness of e-notes vs. Xerox copies, difficulties in accessing e-notes due to internet or device issues, fairness of Xerox shop charges inside or near campus and effectiveness in exam preparation (Bhebie *et al.,* 2025). The survey was administered using online forms to ensure wider reach. Respondents consisted of undergraduate and postgraduate students from various disciplines.

2.3. Sample Size and Population

The target population comprised students from higher education institutions. A convenience sampling technique was adopted, as students were directly accessible within the academic environment. A total of 200 responses were collected, ensuring adequate representation across different academic years and disciplines.

2.4. Data Preparation

The collected responses were coded and entered into a database. To maintain data quality, incomplete or inconsistent responses were screened and excluded from further analysis. The cleaned dataset was then exported into Microsoft Power BI, a powerful business intelligence and visualisation tool, for detailed analysis (Becker and Gould, 2019).

2.5. Data Analysis

The analysis involved both descriptive statistics and visual analytics through Power BI (Singh et al., 2017). Different visualisation techniques were applied to interpret the data

effectively and to identify patterns and trends in students' study material choices. The following chart types were employed:Bar Charts & Column Charts – Used to compare frequencies and proportions of responses, such as monthly expenditure ranges and preferred formats of study materials. Doughnut Charts - Applied to represent categorical distributions, such as the proportion of students relying on different sources (Xerox shops, bookshops, e-notes, etc.). Funnel Charts – Used to depict sequential factors influencing student decisions, such as narrowing from cost-effectiveness to accessibility and final exam preparation choices (Sangeetha, 2025).

2.6. Ethical Considerations

Survey-level participants were intimated priorly and confirmed the participation in voluntary mode. Anonymity and confidentiality of responses were maintained, and personally identifiable information was not collected.

3. Results

The survey collected responses from a total of 200 students, providing insights into their purchasing behaviour, preferred study material formats, influencing factors, expenditure and perceptions regarding cost-effectiveness and accessibility of learning resources. Respondents represented a total of 16 responses from school students and 47 unique colleges, with 47 single responses from unique colleges and the remaining 153 responses coming from students across 11 other colleges where multiple students participated. The participant group comprised 163 undergraduates, 21 postgraduates and 16 school students, offering a broad perspective across different educational levels. These data were analysed and visualised using Microsoft Power BI through bar charts, column charts, doughnut charts and funnel charts.

3.1. Frequency of Purchasing Study Materials

Out of 200 respondents, 83 students (41.5%) reported purchasing study materials

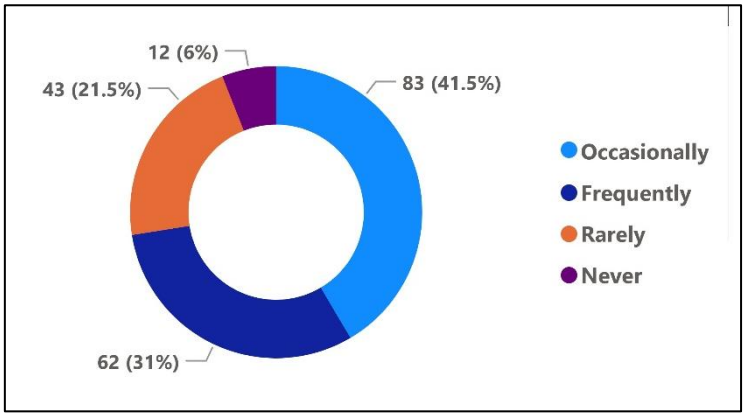

Figure 1. Frequency of purchasing study materials

"Occasionally", while 62 students (31%) did so "Frequently". Another 43 students (21.5%)

indicated purchasing them “Rarely”, and only 12 students (6%) stated that they “Never” purchased study materials. This indicates that most of the students purchase study resources on a periodic or frequent basis, reflecting the continued relevance of supplementary learning materials in academic preparation.

3.2.Preferred Format of Study Materials

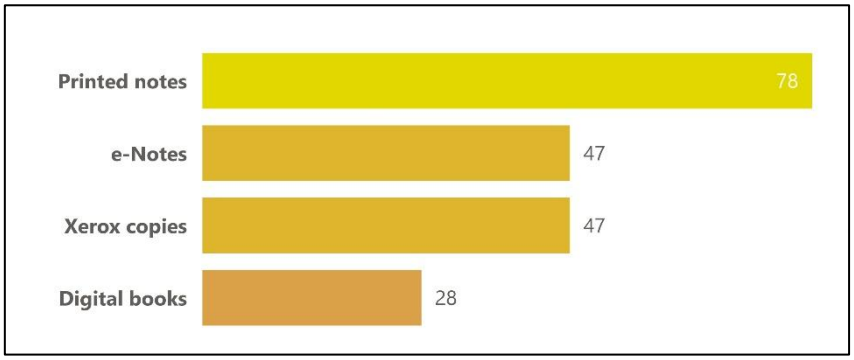

Figure 2. Preferred format of study materials

When asked about preferred formats, “printed notes” were chosen by the largest group, 78 students (39%). “E-notes” and “Xerox copies” were equally preferred, with 47 students (23.5%) selecting them. “Digital books” were the least popular, with only 28 students (14%) favouring them. This indicates that while digital adoption is increasing, printed and photocopied resources still dominate due to accessibility, convenience and exam orientation.

3.3.Factors Influencing Choice of Study Materials

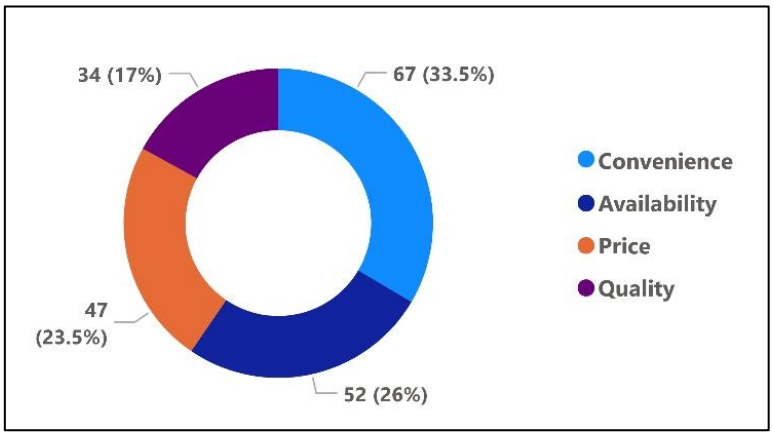

Figure 3. Factors influencing choice of study materials

The survey revealed that “Convenience” was the top influencing factor for 67 students (33.5%), followed by “Availability” for 52 students (26%), “Price” for 47 students (23.5%) and “Quality” for 34 students (17%). The funnel chart representation confirmed that while cost and availability play important roles, students' priority remains access and ease of use, highlighting a strong exam-focused orientation in their decision-making.

3.4.Monthly Expenditure on Study Materials

Regarding expenditure, the largest group of students, 82 students (41%), reported

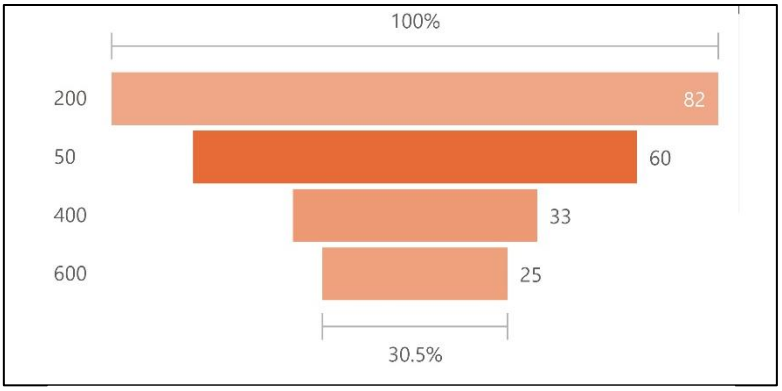

Figure 4. Monthly expenditure on study materials

spending between "₹100 - ₹300" per month. 60 students (30%) spent "Less than ₹100", while 33 students (16.5%) reported spending between "₹300 - ₹500". Only 25 students (12.5%) spent "Above ₹500" monthly. It represents students who invest in reference books, guidebooks or premium online resources. This distribution reflects a modest spending pattern overall, with most students attempting to minimise costs by relying on affordable or shared resources.

3.5. Sources of Study Materials

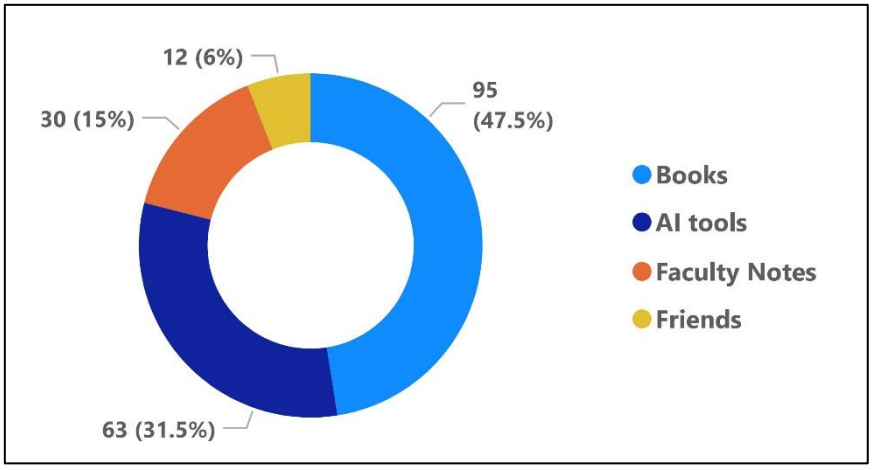

Figure 5. Sources of study materials

In terms of sources, the most relied upon was "Books" (95 students, 47.5%), followed by "AI tools" (63 students, 31.5%). "Faculty notes" were chosen by 30 students (15%), while only 12 students (6%) relied primarily on "Friends" for study materials. This finding suggests that while traditional books remain the most trusted source, AI-powered learning resources are rapidly gaining importance as a complementary or alternative option.

3.6.Perceptions of Cost-Effectiveness of E-Notes vs. Xerox Copies

When asked about difficulties in accessing e-notes due to internet or device issues, 149 students (74.5%) responded "Yes", while 51 students (25.5%) reported "No", while a smaller

proportion preferred Xerox copies for their tangibility and ease of use. This indicates a strong

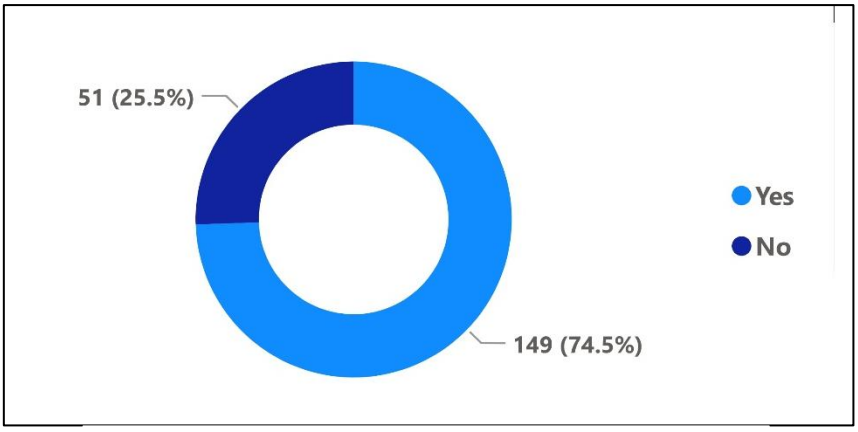

Figure 6. Perceptions of e-notes vs. Xerox copies

shift toward digital resources, largely driven by financial considerations, though adoption barriers still exist.

3.7. Accessibility Challenges with E-Notes

When asked about difficulties in accessing e-notes due to internet or device issues, 129 students (64.5%) responded "Yes" while 71 students (35.5%) reported "No" issues. This

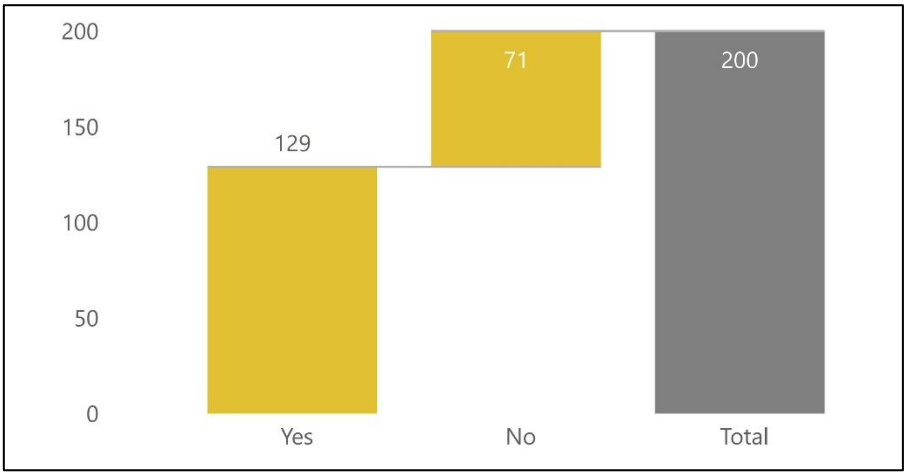

Figure 7. Accessibility challenges with e-notes

reflects infrastructural and technological barriers, especially for students from rural or economically weaker backgrounds. Despite this, e-notes continue to gain popularity due to their low cost and portability.

3.8. Perceptions of Xerox Shop Pricing

Perceptions regarding Xerox shop pricing near campus were mixed: 115 students (57.5%) believed shops "charge fairly", while 85 students (42.5%) felt pricing was "unfair". This reflects a degree of dissatisfaction among students, particularly as reliance on Xerox shops remains high despite rising costs.

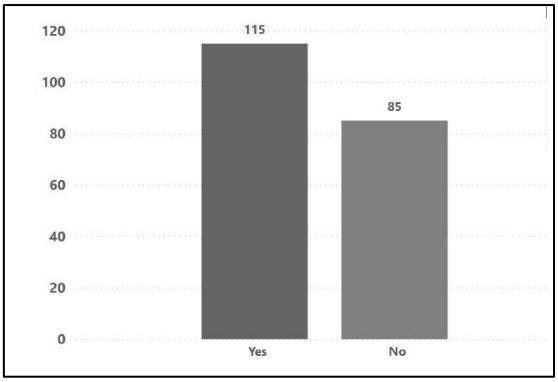

Figure 8. Perceptions of Xerox shop pricing

3.9. Study Material Effectiveness in Exam Preparation

When asked which resources were most effective for exam preparation, "Class notes" were rated highest by 74 students (37%), followed closely by "Books" by 69 students (34.5%). "AI tools" were chosen by 57 students (28.5%). This suggests that while technology-based

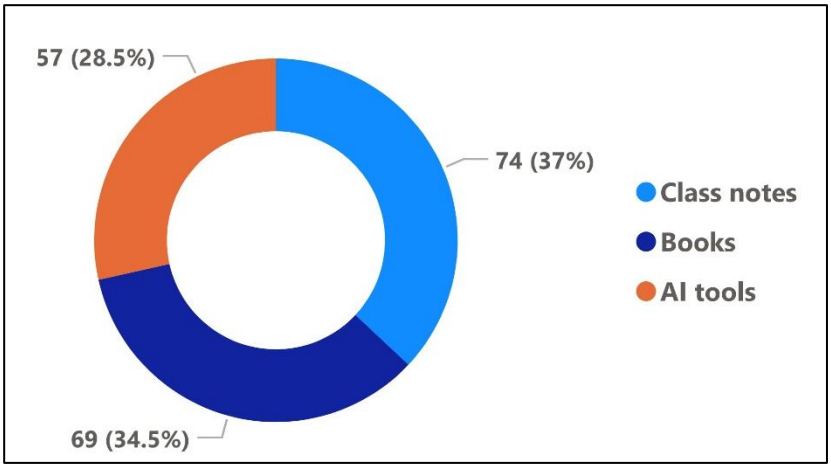

Figure 9. Effectiveness of study materials in exam preparation

tools are gaining popularity, students still place greater trust in class-based resources and traditional books for exam-focused preparation.

3.10. Discussion

The findings of this study reveal a complex and evolving landscape of student preferences and behaviours regarding study materials. While there is a growing penetration of digital resources, traditional formats such as printed notes and Xerox copies continue to dominate, largely due to their accessibility, tactile engagement and perceived effectiveness in exam preparation. The data indicates that most of the students procure study materials either "occasionally" or "frequently", reflecting a continued dependency on supplementary resources beyond classroom instruction. Interestingly, despite the proliferation of online tools, printed

notes remained the most preferred format, chosen by 39% of respondents, highlighting students' trust in tangible, annotated materials during exam preparation (Buhalis and Law, 2008).

Convenience emerged as the most significant factor influencing students' choices, followed by availability and cost. This underscores the pragmatic and goal-orientated approach students adopt, where ease of access and relevance to exams are prioritised over format or innovation. Monthly expenditure patterns further reinforce this, with most of the students spending between ₹100 and ₹300, indicating a strong inclination toward affordable study options. The low percentage of students spending above ₹500 suggests that while some may invest in premium resources, most rely on budget-friendly alternatives such as Xerox copies, shared resources or e-notes. The reliance on books (47.5%) as the primary source of study material affirms the continued value placed on traditional learning tools, yet the growing use of AI tools (31.5%) signals a significant shift toward digital augmentation of learning. Despite this, access to e-notes remains uneven, with 64.5% of students reporting challenges related to internet or device availability. This digital divide particularly affects students from lower-income or rural backgrounds, potentially reinforcing educational inequalities. Based on their low or zero marginal cost, e-notes are perceived as being more cost-effective than Xerox copies. However, the reliable format of paper-based resources is still very important, and it is particularly important for students who do not have access to the necessary digital infrastructure (Cox *et al.,* 2024). The conflicting opinions about Xerox shop pricing, with more than 40% of respondents thinking that fair pricing was not provided, appear to point to both a chance for pricing transparency and an institutional way to control or subsidise student services. Students expressed a wish for additional options in how they could receive the materials throughout the survey.

Digital options, including artificial intelligence (AI) tools, were ranked lower than traditional sources, such as books and class notes, in terms of exam preparation effectiveness. This indicates that even though students are utilising new technology, they still favour using tried-and-true resources that are regularly used to get ready for important tests. In general, this implies that both traditional and developmentally acquired learning methods can coexist and that students can make choices depebased on how they access, use, and depend on the affordances of each learning source, which are impacted by factors like exam demands, resource costs, accessibility. The key findings of this empirical study may help educational institutions, policymakers and private study resource providers create focused interventions

that will guarantee fair, economical and efficient access to study materials for a wide range of students.

Additional evidence from global contexts further validates these results. Chavali & Gundala (2022) showed that although e-textbooks are often cheaper and interactive, over one-third (34.39%) of U.S. university students surveyed did not want to continue using them, indicating that digital adoption can be situational and strongly influenced by cost, convenience and learning comfort. Similarly, Harmarajlu (2023) reported that while 57.5% of Saudi Arabian university students preferred e-textbooks for portability and ease of note-taking, many still valued prints for comprehension and group study, reflecting the same dual reliance observed in this study. With respect to digital innovation, Sakelaris et al. (2025) found that medical students using AI tools such as ChatGPT for clarification and summarisation performed at similar levels to non-users in exams, suggesting that while AI enhances accessibility and personalisation of learning, it does not yet yield a measurable performance advantage. This is consistent with our discovery that, when preparing for important tests, students continue to rely on tried-and-true traditional resources while experimenting with AI.

Collectively, these findings imply that rather than a straight-line transition between print and digital tools, student learning ecosystems around the world are characterised by their coexistence. Exam orientation, perceived dependability, infrastructure and affordability all influence preferences. For all students to gain from the best of both worlds, policymakers and educational institutions must invest in hybrid strategies that lower the cost of print while simultaneously enhancing digital accessibility, infrastructure and training.

4. Conclusion

This study demonstrates that students' demand for study materials is shaped by a blend of traditional and digital preferences, with printed notes and books continuing to dominate while e-notes and AI tools gain steady traction. Convenience, affordability and exam relevance emerged as the most influential factors guiding choices, reflecting the practical and goal-oriented mindset of learners. Although e-notes are widely regarded as cost-effective, digital access barriers such as unreliable internet and limited devices still hinder adoption, particularly among rural and low-income students. While AI tools are becoming popular, students largely continue to trust class notes and textbooks for exam preparation due to their reliability and focus. Mixed views on Xerox shop pricing also reveal the need for transparency and institutional support. Overall, the findings suggest that a hybrid approach, combining the

strengths of both print and digital formats, is essential for ensuring equitable access, cost-effectiveness and enhanced academic outcomes.

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