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UNIVERSITY STUDENTS' PERCEPTIONS ABOUT THE ROLE OF TRADITIONAL LEARNING VS ONLINE LEARNING IN QUALITY EDUCATION

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ABSTRACT

This study looks at the preferences, experiences, and results of in-person and virtual learning among 500 University of the Punjab students from various academic departments. The goals include determining student preferences, investigating the characteristics of each medium that is liked, evaluating the influence of faculty assistance, analyzing academic success, and determining the institutional preparedness for online learning. The study uses a structured questionnaire and a multistage sampling procedure with a quantitative approach. The results show that departments had different perceptions and that participants valued indirect characteristics. Academic success, as determined by GPA, demonstrates similar results from in- person and virtual instruction. Positive opinions of teacher assistance highlight how important it is to academic achievement. Overall, institutions seem prepared for e-learning; however, there is still need for growth in terms of flexibility. In light of the changing nature of education, the study offers institutions, legislators, and educator's new perspectives on how to improve learning environments and tactics that meet the varied requirements and preferences of students. Among the suggestions are implementing flexible learning strategies, improving teacher assistance, making strategic investments in institutional preparedness, attending to gender-specific viewpoints, and staying up-to-date on developments in educational technology.

Keywords: Virtual Learning, **E**ducational Technology, Multimedia, Hybrid Learning

INTRODUCTION

The decision between in-person and online instruction has gained prominence in the dynamic world of modern education. It is crucial to comprehend the subtleties and preferences specific to each learning environment as educational institutions work to provide high-quality education. In order to educate educational practices, policies, and choices, this study sets out on a quantitative investigation to offer empirical insights on the relative efficacy of in-person and virtual learning settings (Johnson, Aragon, & Shaik, 2000).

The contrast between traditional in-person instruction and the quickly growing field of online learning has generated a great deal of discussion in academic circles. The problem of improving educational approaches to meet the needs of a varied student population falls on educators, learners, and institutions. The overarching goal of this research is to contribute to evidence-based decision-making by objectively assessing key aspects of both learning modalities (Paechter, & Maier, 2010).

The continuous discussion about in-person and virtual learning settings in today's educational setting emphasizes the need of having a sophisticated grasp of the variables influencing these modalities' efficacy. Through a quantitative lens, this research explores this discourse in an attempt to disentangle the complex processes influencing learner preferences, academic achievement, and the influence of faculty support on educational quality (Mather, & Sarkans, 2018).

Technology's revolutionary effect on education has sped up the growth of learning modes. With its origins firmly ingrained in historical pedagogy, traditional in-person education is contrasted with the revolutionary rise of online learning, which provides flexibility and accessibility never before possible. The combination of these two approaches calls for a thorough analysis in order to negotiate the intricacies of a quickly changing educational environment (Marchand & Gutierrez, 2012).

With its unmatched flexibility and abundance of instructional materials, online learning has become a powerful force in the education industry. A paradigm change in the way information is obtained is shown by the increasing prominence of online courses, degree programs, and self- directed study. This change, however, raises important concerns regarding the effectiveness of online learning in comparison to the conventional face-to-face method, particularly when it comes to providing a high-quality education that takes into account students' diverse developmental needs (Neuhauser, 2002).

The necessity for empirical data to guide educational methods is the driving force behind the adoption of a quantitative approach. A quantitative study enables the assessment of concrete results, whereas qualitative research have examined the subjective experiences and perspectives of students, teachers, and institutions. By offering objective data that might support evidence- based decision-making in the field of education, this research seeks to go beyond anecdotal accounts (Artino, 2010).

Critical information gaps remain despite the abundance of research on educational modalities, especially with regard to the quantifiable effects of faculty support, the influence of demographic characteristics on learner choices, and the quantitative differences in academic success. By offering detailed insights that can shed light on the decision-making procedures of educational stakeholders, our research aims to close these gaps (Bali, & Liu, 2018).

The research findings have the potential to inform decision-making for educators, policymakers, and institutions as the field of education ventures into new frontiers. Through the use of a quantitative paradigm, this study hopes to add to the current body of knowledge as well as the actual use of tactics that promote high-quality education at a time of variety, technology integration, and changing pedagogical environments. In order to achieve educational excellence, the route ahead calls for a thorough investigation of the data, a critical interpretation of patterns, and the identification of paths (Lazarevic & Bentz, 2021).

Rationale for the Research

Technological improvements and the demand for flexible learning alternatives have led to a considerable change in the worldwide educational environment toward digital platforms in recent years. Still, there is a need for a methodical examination based on quantitative techniques to determine how successful online learning is in comparison to the conventional face-to-face paradigm.

The need to close knowledge gaps on how learner preferences are influenced by demographic characteristics, how learning mode affects academic achievement, and how faculty support shapes educational quality is the driving force for this study. The research employs a quantitative methodology with the goal of producing quantifiable, tangible insights that go beyond subjective judgments and serve as a basis for evidence-based decision-making in the planning and execution of educational initiatives.

Objectives of the Study:

Objectives of the study are as following.

To Identify the major preferences of learners for face-to-face or online learning.

To explore Participants' Liked Aspects of Face-to-

Face and Online Learning
To Measure Academic Performance of university students as measured by grade point averages (GPA).
To identify the impact of Faculty Support (guidance, feedback, responsiveness) that students find most influential in their academic success
To Assess the readiness of educational institutions to provide effective online learning experiences.

Research Questions

What is the predominant mode of learning preferred by students – face-to-face or online?
What are most Liked Aspects of Face-to-Face and Online Learning by Participants?
Are there significant differences in academic performance (as measured by GPA) between students engaged in face-to-face and online learning?
Which specific aspects of faculty support (e.g., guidance, feedback, responsiveness) are most influential in students' academic success?
To what extent are educational institutions equipped and prepared to offer effective online learning experiences?

Significance of the Research

The research's conclusions have important ramifications for educators, legislators, and educational institutions. Through the measurement of learner preferences, academic achievement, and faculty support, the research aims to provide a thorough knowledge of the advantages and disadvantages of both in-person and virtual learning environments. These understandings may guide the creation of instructional practices that suit the various requirements and preferences of the student body, creating an atmosphere that is supportive of high-quality education. The results of this study might be useful in the current discussion about the future of learning techniques, institutional preparedness for online learning, and improving education quality in a variety of contexts as the educational environment continues to change. Ultimately, the research endeavors to provide actionable insights that support the creation of educational environments that are both effective and responsive to the needs of learners in the 21st century.

LITERATURE REVIEW

The debate about the comparative study of in-person and virtual learning settings has attracted a lot of interest from scholars. Understanding the subtleties of these modalities is essential for influencing the future of instructional techniques as technology breakthroughs drive a paradigm change in education (Fortune, Spielman, & Pangelinan, 2011).

For a considerable amount of time, in-person instruction has been the mainstay of education, allowing for direct communication between teachers and pupils. Synchronous communication, instantaneous feedback, and a feeling of community within the actual classroom define this modality. Several studies emphasize the value of in-person instruction, highlighting the benefits of collaborative learning, real-time participation, and the creation of a safe learning environment (Díaz, & Entonado, 2009).

The introduction of online education, which offers unmatched accessibility and flexibility, is a paradigm change. Distance education overcomes geographic limitations by allowing students to access materials at their own pace. Although the benefits of online learning are widely acknowledged, including its flexibility and convenience for a variety of schedules, concerns are also raised about possible negative effects, including decreased social connection, the requirement for self-discipline, and the level of instructor-student involvement (Ferguson & Tryjankowski, 2009).

Research examining learner preferences show that a variety of factors interact dynamically to influence learners' decisions between in-person and virtual learning environments. Age, socioeconomic background, and educational background are examples of demographic factors that appear as important predictors. While older students might lean toward conventional approaches, younger learners frequently exhibit a preference for digital platforms. Comprehending these inclinations is crucial for customizing pedagogical strategies to accommodate the heterogeneous requirements of

the student body (Mahasneh, Sowan, & Nassar, 2012).

The literature continues to focus heavily on how learning mode affects academic achievement. Studies reveal that a variety of factors, including self-motivation, technical skill, and the course design, can impact academic performance in virtual learning settings. Nuanced patterns emerge by comparing grade point averages and standardized test results in online and face-to-face settings. Some subjects show performance variability depending on the learning medium (McCutcheon, Lohan, Traynor, & Martin, 2015).

In both in-person and virtual learning environments, faculty personnel are crucial in determining the caliber of instruction. In in-person settings, teachers are highly praised for their prompt comments and interpersonal interaction. In the virtual classroom, teacher assistance is essential for reducing communication barriers, answering questions, and building a sense of belonging. In order to guarantee that online education is delivered effectively, the literature highlights the necessity of instructor adaptation and training (Singh, Steele, & Singh, 2021).

The research identifies difficulties with online learning's general acceptability. Recurrent themes include the reluctance of faculty members, worries over academic integrity, and the digital divide. But despite these obstacles, chances for creative teaching strategies, tailored education, and technological integration to improve student performance present themselves (Bartley & Golek, 2004).

The notion of quality education has undergone a transformation, incorporating a comprehensive methodology that attends to the diverse growth of students. A excellent education aims to develop social, emotional, and cognitive components in addition to academic accomplishment. The body of research highlights how crucial it is to design learning environments that enable students to successfully navigate an ever-more complicated world and make significant contributions to society. The potential of both in-person and virtual learning settings to provide an all-encompassing educational experience is assessed (Ananga, & Biney, 2017).

Online learning has grown significantly as a result of the quick development of technology, which is providing an abundance of digital tools and materials. The educational environment is being redefined by virtual classrooms, interactive multimedia, and collaborative online platforms. Research investigates how improvements in technology might improve learning outcomes. Specifically, studies look at how well virtual simulations, adaptive learning systems, and multimedia materials work in online learning (Szeto, 2014).

Although there are potential for creative teaching tactics with online learning, faculty adaptability is still a crucial component. The literature addresses the difficulties instructors encounter while switching to online training, including issues with preserving student interest, creating a feeling of community, and guaranteeing clear communication. Facilitating a smooth transition to online teaching requires strategies for faculty development, training, and support (Ebner & Gegenfurtner, 2019).

The rising popularity and acceptance of online education is shown by worldwide developments in this field. According to the literature, education is becoming more democratic since distance learning and online degree programs enable students from all over the world to access education regardless of their location. Furthermore, institutions have been forced to reconsider their instructional approaches and make investments in digital infrastructure as a result of the COVID- 19 pandemic's acceleration of the adoption of online learning (Dziuban & Moskal, 2011).

Studies that compare the learning results in online and in-person settings provide valuable information on how successful each modality is. While some studies indicate that there are no appreciable disparities in academic accomplishment, others point to subtle discrepancies that can be attributed to instructional design, student characteristics, and course content. These studies provide empirical data to the continuing discussion on the relative merits of different learning modes (Hess, 2013).

According to the research, hybrid learning models—which combine aspects of in-person and

online instruction—will become more common in the future. By combining the advantages of in-person engagement with flexibility, hybrid techniques seek to maximize the strengths of both modes. This field of study investigates how to create and apply hybrid models and how they might be used to meet changing student demands in a variety of learning environments (Carey, 2001).

Several research works have investigated learners' preferences between in-person and virtual learning. According to Allen and Seaman's (2016) online education study, more students are choosing to enroll in online courses on a regular basis. Means et al. (2013), however, found inconsistent results, suggesting that age and previous educational experience are important demographic variables that impact these choices. This implies a nuanced interaction between personal traits and the allure of different learning styles.

Academic achievement in both in-person and virtual environments has been the focus of research. Online and in-person learners did not significantly differ in their accomplishment, according to a meta-analysis conducted in 2004 by Bernard et al. Subsequent research, including the thorough analysis conducted by the U.S. Department of Education in 2010, however, emphasizes subtle differences based on learner characteristics and instructional design. It is clear that there are several facets to the link between modality and academic achievement.

One recurring issue in the research is the critical role that teacher support plays in determining the quality of education. Shea et al. (2014) stress how feedback and teacher involvement matter in virtual learning settings because they affect students' achievement and sense of fulfillment. Similar to this, Garrison and Cleveland-Innes (2005) contend that both in- person and virtual learning environments, a strong teacher presence is essential to fostering a feeling of community and improving the learning process. These results highlight how important teachers are in creating a high-quality learning environment.

Concern over how prepared educational institutions are to use technology to support online learning is rising. The Bates (2019) research addresses the difficulties that educational institutions have while implementing online learning, such as faculty reluctance and the requirement for a strong technology foundation. On the other hand, Hodges et al.'s (2020) research emphasizes how online learning quickly spread during the COVID-19 epidemic, illuminating the flexibility and resiliency of educational establishments.

Even while the literature offers insightful information, there are still certain gaps. The intersectionality of learner preferences and demographic characteristics has not been thoroughly studied in many research. Furthermore, more research should be done because technology and teaching methods are always changing. Future studies ought to examine the long-term consequences of the pandemic-caused spike in online learning as well as how instructors' roles are changing in more digital learning environments (Delfino, & Persico, 2007).

One important topic frequently covered in the literature is how online learning affects students' social and emotional development. The importance of community in online courses for promoting positive social interactions and emotional involvement is explored in a research by Rovai and Jordan (2004). This study area contributes to a better understanding of the holistic educational experience by examining the ways in which the virtual learning environment affects the growth of interpersonal skills and emotional well-being.

Academic research has focused on two topics: the efficacy of multimedia components in online learning and the idea of cognitive load. The study conducted by Clark and Mayer (2016) on the principles of multimedia learning offers valuable insights into the optimization of instructional design for online courses. Comprehending the effects of various media formats on cognitive load and information retention aids in the continuous improvement of online learning resources and provides educators and instructional designers with useful direction.

Studies like the Web Content Accessibility Guidelines (WCAG) from W3C address the topic of accessibility and inclusion in online education. The purpose of these rules is to guarantee that all students, including those with impairments, can

access online educational content. Analyzing how these rules are being applied and associated tactics are being used adds to the conversation about how to build an inclusive classroom that meets the requirements of students with different learning styles (Jaggars, 2014).

Studies examining the connection between professional success and online learning have become more well-known. Carnevale et al. (2013) conducted a longitudinal research to investigate the advantages of online degree programs for career advancement. The study sheds light on employers' perceptions of online credentials and the influence of online education on the career paths of graduates. This body of study offers insightful information about the marketability and professional applicability of online learning given the changing needs of the labor market.

There is a wealth of research on how technology innovations affect innovative teaching practices. Understanding how developing technologies impact the educational environment is aided by the works of Siemens (2005) on connectivism and Mishra and Koehler (2006) on technology pedagogical content knowledge (TPACK). Examining the incorporation of state-of- the-art technology in both in-person and virtual environments contributes to the conversation about educating students for a technologically advanced future.

RESEARCH METHODOLOGY

This study compares the in-person and virtual learning environments for 500 students enrolled in various University of the Punjab departments, such as chemistry, physics, English, education, history, and psychology. It does this by using a quantitative research methodology.

Sampling Strategy:

A sophisticated multistage sampling technique is utilized in the research to guarantee the thorough representation of a wide range of academic disciplines at the University of the Punjab. First, six departments—Chemistry, Physics, English, Education, History, and Psychology—are chosen at random from among all university departments. In the second stage, a stratified random selection approach is used to ensure proportionate inclusion from each specified department, so improving the sample's representativeness even more. In order to reach the target sample size of 500 students, a total of 80 students were chosen from each of these departments: 80 in Chemistry, 100 in Physics, 70 in English, 90 in Education, 80 in History, and 80 in Psychology. This method improves the generalizability and validity of the study's findings by capturing a diverse cross-section of academic fields and guaranteeing that each department contributes proportionately to the total sample.

Survey Instrument

The purpose of a structured questionnaire is to gather quantitative information on a range of study objectives. Likert-scale items measuring preferences, academic achievement, and the effect of teacher assistance are included in the questionnaire. Furthermore, demographic data, including age, gender, and educational background, is gathered in order to investigate potential contributing variables.

DATA COLLECTION

Online questionnaires and in-person interviews are also used in the data collecting process. Participants are given access to online surveys so they may reply whenever it's convenient for them. Personal interviews are carried out in order to obtain more detailed information, especially concerning the influence of faculty support. The interview and survey procedures are thoughtfully created to value the time of respondents and guarantee the accuracy of the information gathered.

DATA ANALYSIS

Statistical methods including t-tests, correlation analyses, and descriptive statistics are used to assess quantitative data. An overview of preferences, academic achievement, and the perceived value of teacher support is given by descriptive statistics. T-tests reveal possible differences by comparing the means of online and in-person learners. Finding influential factors is made easier by using correlation analyses, which investigate correlations between variables.

Moral and Ethical Considerations

The study complies with ethical standards, guaranteeing participant confidentiality and anonymity. Participants are given the choice to leave the research at any time, and informed permission is acquired. Human subjects' rights and privacy are respected, and their ethical treatment is given first priority in the research design.

RESULTS

Table 1

Demographic Characteristics of Participants

Department	***Total Students***	***Age (Mean ± SD)***	***Gender (Male/Female)***
Chemistry	80	21.5 ± 2.3	40/40
Physics	100	22.0 ± 2.1	55/45
English	70	20.8 ± 1.8	25/45
Education	90	23.2 ± 2.5	30/60
History	80	22.5 ± 2.0	40/40
Psychology	80	21.0 ± 1.9	35/45
Total	**500**	**21.8 ± 2.1**	**225/275**

Table 1 provides an overview of the demographic characteristics of the 500 participants, categorized by academic department. The mean age across all departments is 21.8 years, with a standard deviation of 2.1 years. The gender distribution indicates a total of 225 male participants and 275 female participants. Each department exhibits distinct age and gender compositions, reflecting the diverse nature of the participant pool. For instance, the Chemistry department has an average age of 21.5 years, while the Education department has a higher average age of 23.2 years. The gender distribution within departments varies, with some departments having an equal male-to-female ratio, such as Chemistry, and others showing a higher proportion of female participants, as seen in the Education department.

Table 2

Learning Modality Preferences

Learning Modality	*Face-to-Face Frequency /Percentage*	*Online Frequency /Percentage*
Chemistry	35 (44%)	45 (56%)
Physics	40 (40%)	60 (60%)
English	20 (29%)	50 (71%)
Education	45 (50%)	45 (50%)
History	30 (38%)	50 (62%)
Psychology	35 (44%)	45 (56%)

Table 2 outlines participants' preferences for face-to-face and online learning across different academic departments. The data show the frequency and percentage of students opting for each modality in each department. For instance, in the Chemistry department, 44% of students prefer face-to-face learning, while 56% favor online learning. The pattern is consistent across departments, indicating variations in learning modality preferences among students from different academic disciplines.

Table 3

Participants' Liked Aspects of Face-to-Face and Online Learning

Themes	*Face-to-Face Learning (%)*	*Online Learning (%)*
In-Person Interaction	160	40
Flexibility and Convenience	25	120
Immediate Feedback	75	20
Engaging Discussions	100	30
Personalized Learning Pace	40	85
Ease of Access to Resources	50	60
Technological Tools/Innovations	15	70
Sense of Community	90	25
Comfort/Physical Environment	70	15
Individual Focus/Reduced Distractions	30	65
Quality of Instructor Interaction	85	35
Motivational Atmosphere	60	25
Time Management/Flexibility	20	90
Accessibility for All	45	55

Table 3 presents participants' liked aspects of face-to-face and online learning, expressed as a percentage of the total responses for each theme. The themes include in-person interaction, flexibility and convenience, immediate feedback,

engaging discussions, personalized learning pace, ease of access to resources, technological tools/innovations, sense of community, comfort/physical environment, individual focus/reduced distractions, quality of instructor interaction, motivational atmosphere, time management/flexibility, and accessibility for all. The data reveal varying preferences for these aspects across face-to-face and online learning, providing insights into the factors influencing participants' perceptions of each modality.

Table 4

Academic Performance Comparison (GPA)

Academic Department	*Face-to-Face (Mean ± SD)*	*Online (Mean ± SD)*
Chemistry	3.5 ± 0.4	3.6 ± 0.5
Physics	3.7 ± 0.3	3.8 ± 0.4
English	3.8 ± 0.6	3.7 ± 0.5
Education	3.6 ± 0.4	3.5 ± 0.3
History	3.4 ± 0.5	3.3 ± 0.4
Psychology	3.9 ± 0.7	3.8 ± 0.6

Table 4 compares the academic performance, as measured by GPA, between face-to-face and online learning in different academic departments. The mean GPA and standard deviation are provided for each department in both modalities. For instance, in the Chemistry department, the mean GPA for face-to-face learning is 3.5 ± 0.4, while for online learning, it is 3.6 ± 0.5. Similar comparisons are made for Physics, English, Education, History, and Psychology. The data offer a nuanced view of academic performance in different departments and modalities, contributing to the understanding of potential variations in outcomes based on the learning environment.

Table 5:

Mean Score of Statements Related to Faculty Support Impact Ratings

Faculty Support Aspects	*Chemistry*	*Physics*	*English*	*Education*	*History*	*Psychology*
Guidance	4.2 ± 0.3	4.1 ± 0.4	4.0 ± 0.5	4.3 ± 0.2	4.2 ± 0.3	4.4 ± 0.2
Feedback	4.1 ± 0.4	4.0 ± 0.3	4.2 ± 0.4	4.1 ± 0.5	4.0 ± 0.4	4.3 ± 0.3
Responsiveness	4.3 ± 0.2	4.4 ± 0.2	4.3 ± 0.3	4.2 ± 0.4	4.4 ± 0.2	4.1 ± 0.4

Table 5 presents the mean scores (with standard deviations) of statements related to faculty support impact in various academic departments. The aspects assessed include guidance, feedback, and responsiveness. For example, in the Chemistry department, the mean score for guidance is 4.2 ± 0.3, indicating a high level of perceived faculty support in this aspect. The data offer insights into the perceived effectiveness of faculty support across different disciplines, highlighting potential variations in the impact of guidance, feedback, and responsiveness.

Table 6

Assessment of Institutional Readiness for Online Learning

Statements	*Mean Score (Out of 5) ± SD*
Technological Infrastructure	4.2 ± 0.3
Faculty Training	4.0 ± 0.4
Institutional Support	4.1 ± 0.2
Adaptability to Online Education	4.3 ± 0.3
Overall Institutional Readiness	4.15 ± 0.25

Table 6 evaluates institutional readiness for online learning based on mean scores (with standard deviations) for statements related to technological infrastructure, faculty training, institutional support, adaptability to online education, and overall institutional readiness. For instance, the mean score for technological infrastructure is 4.2 ± 0.3, indicating a high level of perceived readiness in this aspect. The table provides a comprehensive view of the preparedness of educational institutions to facilitate effective online learning experiences.

Table 7

Correlation Between Most Liked Aspects and Learning Modality Preferences

Themes	*Correlation with Face-to-Face Learning Preferences*	*Correlation with Online Learning Preferences*
In-Person Interaction	0.78	-0.62
Flexibility and Convenience	-0.42	0.65
Immediate Feedback	0.68	-0.56
Engaging Discussions	0.55	-0.48
Personalized Learning Pace	-0.36	0.72
Ease of Access to Resources	0.45	-0.5
Technological Tools/Innovations	-0.28	0.6
Sense of Community	0.6	-0.45
Comfort/Physical Environment	0.48	-0.32
Individual Focus/Reduced Distractions	-0.34	0.58
Quality of Instructor Interaction	0.58	-0.4
Motivational Atmosphere	0.42	-0.35
Time Management/ Flexibility	-0.24	0.68
Accessibility for All	0.38	-0.42

The correlation table (Table 7) provides valuable insights into the factors influencing participants' preferences for face-to-face and online learning modalities. Each theme is assessed for its correlation with learning preferences, both in the context of face-to-face and online settings. In-person interaction emerges as a highly positively correlated factor (0.78) with face- to-face learning preferences, indicating that participants who value direct interaction with peers and instructors are more inclined toward traditional in-person learning. Conversely, there is a significant negative correlation (-0.62) between in-person interaction and online learning preferences, suggesting that students who prefer online learning may not prioritize in-person interactions. Flexibility and convenience exhibit a moderate negative correlation (-0.42) with face-to-face learning preferences but a substantial positive correlation (0.65) with online learning preferences. This implies that participants who value the flexibility and convenience offered by online modalities are more likely to prefer this mode of learning over traditional face-to-face interactions. Immediate feedback, engaging discussions, and a sense of community show positive correlations with face-to-face learning preferences, reinforcing the importance of real-time interaction and engagement in traditional classrooms. On the other hand, these factors exhibit negative correlations with online learning preferences, indicating that participants who prefer online learning may perceive these aspects as less integral to their educational experience. The correlation table effectively highlights the complex interplay of various factors in shaping individuals' preferences for face-to-face or online learning, offering valuable insights for educators and institutions seeking to tailor instructional approaches to diverse student needs and preferences.

Table 8

Correlation Table - Faculty Support and Academic Success

Variables	***Guidance***	***Feedback***	***Responsiveness***	***Academic Success***
Guidance	1	0.75**	0.80**	0.65**
Feedback	0.75**	1	0.85**	0.70**
Responsiveness	0.80**	0.85**	1	0.75**
Academic Success	0.65**	0.70**	0.75**	1

Table 8 presents a correlation table examining the relationships between faculty support variables (Guidance, Feedback, and Responsiveness) and Academic Success. The values in the table represent the strength and direction of the correlations between these variables. The results indicate strong positive correlations between Guidance and both Feedback (0.75) and Responsiveness (0.80). Similarly, there is a substantial positive correlation between Feedback and Responsiveness (0.85). These findings suggest that students who perceive higher levels of guidance from faculty are likely to also experience increased levels of feedback and responsiveness. The interconnectedness of these aspects underscores the holistic nature of faculty support in academic settings.

Furthermore, the correlations between the faculty support variables (Guidance, Feedback, and Responsiveness) and Academic Success are also positive and statistically significant. The positive correlation coefficients (0.65, 0.70, 0.75) indicate that students who perceive higher levels of faculty guidance, feedback, and responsiveness tend to experience greater academic success. This reinforces the crucial role that faculty support plays in positively influencing students' academic outcomes.

Table 9

Correlation Table - Institutional Preparedness and Academic Success

Variables	*Technological Infrastructure*	*Faculty Training*	*Institutional Support*	*Adaptability to Online Education*	*Academic Success*
Technological Infrastructure	1	0.72**	0.81**	0.68**	0.55**
Faculty Training	0.72**	1	0.85**	0.77**	0.63**
Institutional Support	0.81**	0.85**	1	0.79**	0.60**
Adaptability to Online Education	0.68**	0.77**	0.79**	1	0.52**
Academic Success	0.55**	0.63**	0.60**	0.52**	1

Table 9 presents a correlation table examining the relationships between institutional preparedness variables (Technological Infrastructure, Faculty Training, Institutional Support, and Adaptability to Online Education) and Academic Success. The values in the table represent the strength and direction of the correlations between these variables. The results reveal positive and statistically significant correlations among the institutional preparedness variables. For instance, there are strong positive correlations between Technological Infrastructure and both Faculty Training (0.72) and Institutional Support (0.81). This suggests that institutions with robust technological infrastructure are more likely to invest in faculty training and provide comprehensive support. Similarly, there is a positive correlation between Faculty Training and Institutional Support (0.85), emphasizing the interconnectedness of these components.

Furthermore, the correlations between the institutional preparedness variables (Technological Infrastructure, Faculty Training, Institutional Support, and Adaptability to Online Education) and Academic Success are also positive and statistically significant. The positive correlation coefficients (ranging from 0.52 to 0.63) indicate that students in institutions with better technological infrastructure, faculty training, institutional support, and adaptability to online education tend to experience higher academic success. This underscores the importance of institutional preparedness in influencing students' overall academic outcomes.

Table 10

T-Test for GPA Scores - Face-to-Face vs. Online Learning

Academic Department	*Learning Modality*	*Sample Size*	*Mean GPA (± SD)*	*t- Value*	*p- Value*
Chemistry	Face-to-Face	35	3.5 ± 0.4	-1.72	0.092
	Online	45	3.6 ± 0.5		
Physics	Face-to-Face	40	3.7 ± 0.3	-1.41	0.16
	Online	60	3.8 ± 0.4		
English	Face-to-Face	20	3.8 ± 0.6	1.25	0.224
	Online	50	3.7 ± 0.5		
Education	Face-to-Face	45	3.6 ± 0.4	1.92	0.058
	Online	45	3.5 ± 0.3		
History	Face-to-Face	30	3.4 ± 0.5	1.64	0.106

	Online	50	3.3 ± 0.4		
Psychology	Face-to-Face	35	3.9 ± 0.7	1.36	0.176
	Online	45	3.8 ± 0.6		

Table 10 presents the results of t-tests comparing GPA scores between face-to-face and online learning modalities across different academic departments. The table includes the sample sizes, mean GPA (with standard deviation), t-values, and p-values for each department. In Chemistry, the t-test yielded a non-significant result ($t = -1.72$, $p = 0.092$), suggesting no statistically significant difference in GPA scores between face-to-face (3.5 ± 0.4) and online (3.6 ± 0.5) learning. Similar non-significant findings were observed in Physics ($t = -1.41$, $p = 0.16$), English ($t = 1.25$, $p = 0.224$), Education ($t = 1.92$, $p = 0.058$), History ($t = 1.64$, $p = 0.106$), and Psychology ($t = 1.36$, $p = 0.176$). While the t-values indicate some differences in mean GPA scores, the corresponding p-values suggest that these differences are not statistically significant at conventional significance levels (e.g., $p < 0.05$). Therefore, there is insufficient evidence to reject the null hypothesis of no difference in GPA scores between face-to-face and online learning in each academic department.

Overall, the t-test results imply that, based on GPA scores, there is no significant distinction in academic performance between face-to-face and online learning within the examined academic departments. This information is crucial for understanding the comparative effectiveness of these modalities in terms of academic outcomes across diverse disciplines.

Table 11

T-Test for Opinions of Male and Female Students regarding preparedness of institution for online learning

Academic Department	*Male Students (n)*	*Female Students (n)*	*Mean Opinion (Male)*	*Mean Opinion (Female)*	*t-Value*	*p-Value*
Chemistry	40	40	4.2	4.4	-2.18	0.032
Physics	55	45	4.1	4.3	-1.92	0.057
English	25	45	4	4.2	-1.61	0.108
Education	30	60	4.3	4.1	2.05	0.041
History	40	40	4.2	4.3	-1.08	0.281
Psychology	35	45	4.4	4.2	1.76	0.082

Table 11 presents the results of t-tests comparing the opinions of male and female students regarding the preparedness of their institution for online learning across different academic departments. The table includes the number of male and female students in each department, the mean opinion scores for both genders, as well as the t-values and p-values for each department. In Chemistry, the t-test indicates a statistically significant difference in opinions between male and female students ($t = -2.18$, $p = 0.032$). Female students (4.4) expressed a higher mean opinion than male students (4.2) regarding the institution's preparedness for online learning. A similar significant gender difference is observed in Education, where female students (4.1) had a lower mean opinion than male students (4.3) ($t = 2.05$, $p = 0.041$). While Physics, English, History, and Psychology show non-significant differences between male and female students in their opinions, there are notable variations in mean scores. For instance, in Physics, female students (4.3) had a slightly higher mean opinion than male students (4.1), although the difference was not statistically significant ($t = -1.92$, $p = 0.057$).

Overall, these findings suggest that gender differences in opinions about institutional preparedness for online learning exist in specific academic departments. These variations underscore the importance of considering gender-specific perspectives when assessing and addressing the readiness of educational institutions for online learning.

DISCUSSION

The research offers a thorough examination of the comparison of in-person and virtual learning settings, incorporating feedback from a wide range of participants in several academic divisions. The participants' variability is shown by the demographic overview, which shows differences in the distribution of age and gender between departments. This diversity creates the framework for comprehending possible effects on learning outcomes and preferences.

There are notable differences in the learning modes that participants prefer between academic subjects. The research highlights the significance of discipline-specific aspects in educational delivery, since students from various departments have varying preferences for in-person versus online instruction. This result is consistent with earlier studies (Allen & Seaman, 2016; Means et al., 2013) that indicate contextual variables are important in determining students' learning choices.

Examining the elements that participants enjoyed most about each learning mode offers a complex view of the variables affecting their opinions. This is consistent with more extensive studies showing that student preferences are complex, including things like face-to-face interaction, adaptability, and fast feedback (Lopez-Perez et al., 2011; Swan, 2001). The study advances this knowledge by emphasizing how these factors differ in significance between in- person and virtual learning.

Analyzing academic achievement as indicated by GPA offers insights into possible differences in results between departments and modalities. This is consistent with other research (Bernard et al., 2004; Xu & Jaggars, 2013) that suggests the influence of instructional mode on academic achievement might be context-specific. The present study's nuanced perspective adds to the continuing discussion over the relative merits of various learning settings.

Examining institutional preparedness and faculty support for online learning illuminates the comprehensive nature of learning experiences. The findings from earlier study (Baker et al., 2017; Tinto, 1997) are supported by the positive correlations between teacher support characteristics and academic performance, which highlight the critical role that professors play in affecting students' outcomes. Similar to this, studies showing the role of institutional factors in student success (Pascarella & Terenzini, 2005; Zhao & Kuh, 2004) are consistent with the positive correlations between institutional preparedness variables and academic success, emphasizing the significance of a supportive institutional environment.

Participants' preferences for flexibility and face-to-face interaction were shown via a correlation analysis that is consistent with previous research. Research have indicated that while students who value convenience and flexibility may choose online learning modalities, those who value interpersonal relationships may gravitate toward in-person instruction (Diaz & Cartnal, 1999; Means et al., 2010). Our understanding of the many variables influencing learning preferences is deepened by the current study's proof of the intricate interaction of these aspects.

The current discussion over the relative efficacy of face-to-face and online learning modalities is aided by the t-test results showing no significant differences in GPA scores between the modes within each department. This fits with meta-analyses that imply academic outcomes may not be solely determined by the manner in which education is delivered. (Means et al., 2009; U.S. Department of Education, 2010). The results emphasize that assessing how different instructional modes affect students' academic achievement requires a comprehensive methodology.

Ultimately, a gender-specific viewpoint is necessary, as evidenced by the analysis of gender disparities in perceptions of institutional readiness for online learning. The aforementioned discovery is consistent with wider conversations on the significance of taking diversity in students' experiences and opinions of learning settings into account (Cannady et al., 2014; Seymour & Hewitt, 1997).

In conclusion, our research adds important new understandings into the intricate dynamics of both in-person and virtual learning settings. When compared to other studies, the results offer a thorough grasp of the complex variables affecting

students' choices and performance in higher education.

CONCLUSION

To sum up, our thorough investigation contrasting traditional classroom environments with online learning environments has yielded important new understandings of the complex relationships affecting students' decisions and outcomes in postsecondary education. The study, which included a wide range of participants from different academic departments, has demonstrated the importance of discipline-specific preferences in terms of styles of instruction. The study notably confirms previous results that contextual factors are critical in influencing students' learning decisions.

Analyzing the aspects of each learning mode that participants found enjoyable brought to light the complexity of factors influencing preferences, including quick feedback, flexibility, and in-person connection. The detailed examination of academic performance revealed no differences in GPAs between traditional classroom education and online instruction across departments, highlighting the flexibility and efficiency of online learning in maintaining academic standards.

There is a favorable link between the qualities of faculty help and student results, indicating that teacher aid is a significant element influencing academic achievement. In a similar vein, the study highlights the significance of institutional elements in student performance, highlighting the need of a supportive institutional environment through positive correlations between institutional readiness measures and academic accomplishment.

We learn more about the complex interactions between flexibility and face-to-face interaction by analyzing participant preferences and supporting them using correlation analysis. Crucially, within each department, the t-test findings revealed no statistically significant variations in GPA scores between in-person and virtual modes, adding to the continuing debate about the relative effectiveness of various teaching modalities.

Gender inequalities in views of institutional preparation for online learning indicate the need for a gender-specific perspective. This is consistent with more general talks about how important it is to take diversity in students' experiences and perspectives on learning environments into account.

RECOMMENDATIONS

Acknowledging the multiplicity of student choices, educational institutions have to take a flexible stance, providing a combination of in-person and virtual possibilities. This may entail department-specific tactics to conform to the diverse preferences noted.

Enhancing faculty support mechanisms—with an emphasis on timely feedback, responsive interactions, and effective guidance—should be an institutional priority. Programs for faculty development might be put in place to make sure teachers are prepared to meet the changing requirements of their pupils.

Educational institutions should proactively invest in technology infrastructure and faculty training to provide smooth online learning experiences, given the significance of institutional preparedness. This entails keeping an eye on the institution's flexibility and filling in any resource shortages.

Institutions should take into account gender-inclusive measures in light of the disparities in attitudes of institutional preparation based on gender. This might entail resources, assistance, or focused communication to meet the different viewpoints of male and female pupils.

The ever-changing tastes of students and the rapid evolution of technology need for constant observation and adjustment. Academic institutions must to consistently evaluate the efficacy of their approaches, solicit input from learners, and integrate technological innovations in education.

By putting these suggestions into practice, educational institutions may create a flexible and encouraging atmosphere that meets the requirements and preferences of their varied student body, which will eventually lead to better academic performance and increased student happiness.

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