Student Preferences for Hybrid Versus Face-to-Face Learning Approaches: A Comparative Analysis of Engagement, Learning Outcomes, and Technological Challenges

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ABSTRACT

This study investigates the comparative impact of hybrid and face-to-face learning approaches on college student engagement and learning outcomes. Utilizing a quantitative survey conducted among 200 BSIT students, the research examines demographic information, learning preferences, engagement levels, technological challenges, and overall learning outcomes. The findings reveal that most respondents prefer the hybrid learning approach due to its flexibility, while face-to-face learners emphasize superior content understanding and instructor support. Engagement levels indicate higher interaction among face-to-face learners despite hybrid learners' significant technological challenges. Furthermore, the results demonstrate that face-to-face learners achieve better learning outcomes, as evidenced by their enhanced understanding of course content and assessment performance. These insights inform educators and policymakers on optimizing learning environments to enhance student engagement and academic success.

Keywords: Hybrid Learning, Face-to-Face Learning, Student Engagement, Learning Outcomes, Technological Challenges

INTRODUCTION

The educational landscape has undergone significant transformation due to advancements in technology and the effects of the COVID-19 pandemic, which accelerated the adoption of hybrid learning approaches in higher education. Hybrid learning, which combines online and face-to-face components, has emerged as a viable solution for maintaining instructional continuity while offering flexibility to students (Bao, 2020). This shift has prompted educational institutions to reevaluate the effectiveness of different teaching modalities and explore how students perceive these changes in engagement, learning outcomes, and overall satisfaction.

Student engagement is a critical factor in determining the effectiveness of any educational approach. According to Martin and Bolliger (2021), hybrid learning can increase student engagement by offering flexibility that allows learners to study at their own pace while still participating in scheduled in-person sessions. This dual nature of hybrid courses enables students to benefit from the structure of face-to-face interactions and the autonomy associated with online learning. However, the effectiveness of hybrid learning in promoting engagement often depends on the quality of its design and implementation, which can vary significantly across institutions (Bernard et al., 2020).

The effectiveness of hybrid learning in achieving desired learning outcomes has also been a research topic in recent years. Garrison and Kanuka (2021) reported that hybrid learning can be as effective as face-to-face learning when properly designed, providing opportunities for deeper learning through independent and collaborative activities. Additionally, Sun and Chen (2022) found that hybrid learning promotes critical thinking skills and self-regulation among students, which are essential for academic success in a rapidly changing world. On the other hand, some students perceive traditional face-to-face learning as superior in

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fostering an interactive and supportive learning environment, which can enhance their motivation and comprehension (Moorhouse & Beaumont, 2021).

Technological challenges remain a significant barrier for many students in hybrid learning environments. A study by Rad et al. (2021) highlighted that the effectiveness of hybrid learning is often hindered by issues such as unstable internet connections and a lack of appropriate devices. Students who experience frequent technological difficulties may find it challenging to keep up with course requirements, leading to frustration and decreased satisfaction. This digital divide can create inequalities in learning opportunities, particularly for students from disadvantaged backgrounds (Kumar et al., 2022).

This study investigates student preferences between hybrid and face-to-face learning approaches, focusing on engagement, learning outcomes, and technological challenges. By understanding students' perspectives, educators and administrators can design more effective learning environments that align with student needs and preferences, ultimately improving the quality of education. This research will provide insights into how different teaching modalities impact student engagement and learning outcomes, contributing to the ongoing discourse on effective educational practices in the post-pandemic era.

METHODOLOGY

Theoretical Framework

The study is framed using Tinto's Student Engagement Model, which emphasizes academic and social integration as key determinants of student success (Tinto, 1993). This model posits that student retention is influenced by both academic and social integration. In the context of hybrid and face-to-face learning, academic integration pertains to the level of interaction between students and instructors, while social integration involves peer interactions and the sense of belonging in a learning environment. This study applies Tinto's framework to evaluate how different learning modes affect student engagement and motivation to persist in their studies. Self-Determination Theory (SDT) provides insight into the role of autonomy and motivation in shaping learning preferences (Deci & Ryan, 2000).

Research Design

This study employs a mixed-methods approach, integrating quantitative surveys and qualitative focus groups to assess student preferences between hybrid and face-to-face learning approaches. The descriptive design is suitable for understanding preferences and the factors influencing them in a natural setting (Creswell & Creswell, 2020). A quantitative approach was adopted to collect and analyze data regarding student experiences, engagement levels, learning outcomes, and challenges associated with both learning modalities. This design allows for a systematic and comprehensive examination of student perspectives across various dimensions of learning (Babbie, 2021). To mitigate self-report bias, the study incorporates complementary qualitative data through focus group discussions (Podsakoff et al., 2020).

Population and Sampling

The target population for this study consists of Bachelor of Science in Information Technology (BSIT) students from Nueva Ecija University of Science and Technology (NEUST). A stratified random sampling method ensures proportional representation across year levels. Following guidelines by Taherdoost (2020), who recommends stratified sampling to ensure proportional representation across subgroups. The sample size of 200 students was justified using Cochran's formula for sample size calculation, ensuring statistical validity (Bryman, 2022). Previous studies with similar methodologies also employed comparable sample sizes, reinforcing the appropriateness of this selection (Babbie, 2021).

Ethical Considerations

This study adheres to ethical research principles. Participation was voluntary, and confidentiality was maintained. Informed consent was obtained, and no personally identifiable information was collected. Research ethics board approval was secured before data collection (Roberts et al., 2022).

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue III March 2025

Data Collection Instrument

A structured questionnaire was used as the primary data collection tool. The questionnaire was divided into five sections:

Section A: Demographic Information (age, gender, year level, program)

Section B: Learning Preferences (questions about preference for hybrid or face-to-face learning and reasons for preferences)

Section C: Engagement and Interaction (questions regarding engagement levels during hybrid and face-to-face learning)

Section D: Technological Challenges (questions about internet connectivity, availability of devices, and other challenges in hybrid learning)

Section E: Learning Outcomes (questions on the perceived effectiveness of each learning approach in promoting understanding and performance on assessments)

The questions were designed using a mix of multiple-choice, Likert scale, and open-ended formats to gather comprehensive data, which is consistent with the recommendations of Field (2022) for ensuring data reliability and validity in survey research. The questionnaire was pilot-tested on 20 students to ensure clarity and reliability before the main data collection, as suggested by Saunders et al. (2021).

Data Collection Procedure

The questionnaire was administered online using Google Forms to facilitate easy and convenient access for participants, a method found effective in similar studies during the pandemic period (Smith & Johnson, 2021). Invitations to participate in the study were sent to students through institutional email, with an informed consent form detailing the purpose of the research and ensuring confidentiality. Participation was voluntary, and anonymity was maintained by not collecting any identifying information, following ethical guidelines in educational research (Roberts et al., 2022).

Data Analysis

Data collected from the questionnaire were analyzed using descriptive statistics, including frequencies, percentages, means, and standard deviations, to summarize student preferences, engagement levels, and technological challenges. Descriptive analysis helps in drawing meaningful insights from quantitative data, as noted by Pallant (2022). The analysis was performed using SPSS software to ensure accuracy and reliability. Qualitative data from focus groups were analyzed using thematic analysis, identifying recurring patterns in student responses (Merriam & Tisdell, 2021).

Limitations

The study is limited by its focus on one institution's single academic program (BSIT), which may restrict generalizability to other disciplines or educational settings. Moreover, reliance on self-reported data introduces potential response biases, such as social desirability, as Podsakoff et al. (2020) highlighted. Future research could expand the sample to include multiple academic programs and employ qualitative methods, such as focus groups or interviews, to gain deeper insights into student experiences, consistent with the suggestions of Merriam and Tisdell (2021).

RESULTS

Section A: Demographic Information

The respondents' demographic information indicates a predominantly younger audience, with most participants (61%) falling within the 18-20 age range. This suggests that the study primarily captures individuals typical of college-age students. A substantial portion (36.5%) is aged 21-25, reflecting a group transitioning from undergraduate studies to graduate education or the workforce. Only a small percentage of respondents are

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue III March 2025

below 18 (2%), and an even smaller fraction (0.5%) is above 25, highlighting the focus on younger adults in this demographic (Table 1).

Regarding gender distribution, males constitute a significant proportion of the respondents at 68%, while females represent 32%. This gender disparity may reflect broader trends within the specific fields of study or enrollment patterns at the institution. Notably, no respondents preferred not to disclose their gender, suggesting a high level of comfort and willingness among participants to identify themselves (Table 2).

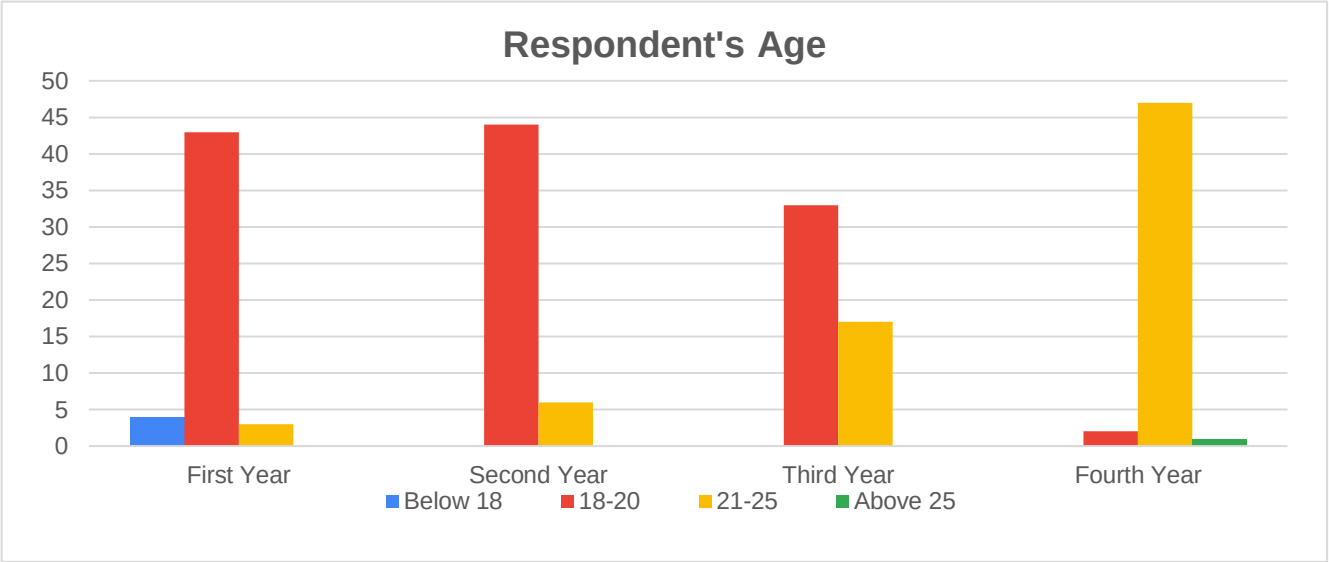

Figure 1. Age Distribution of Respondents

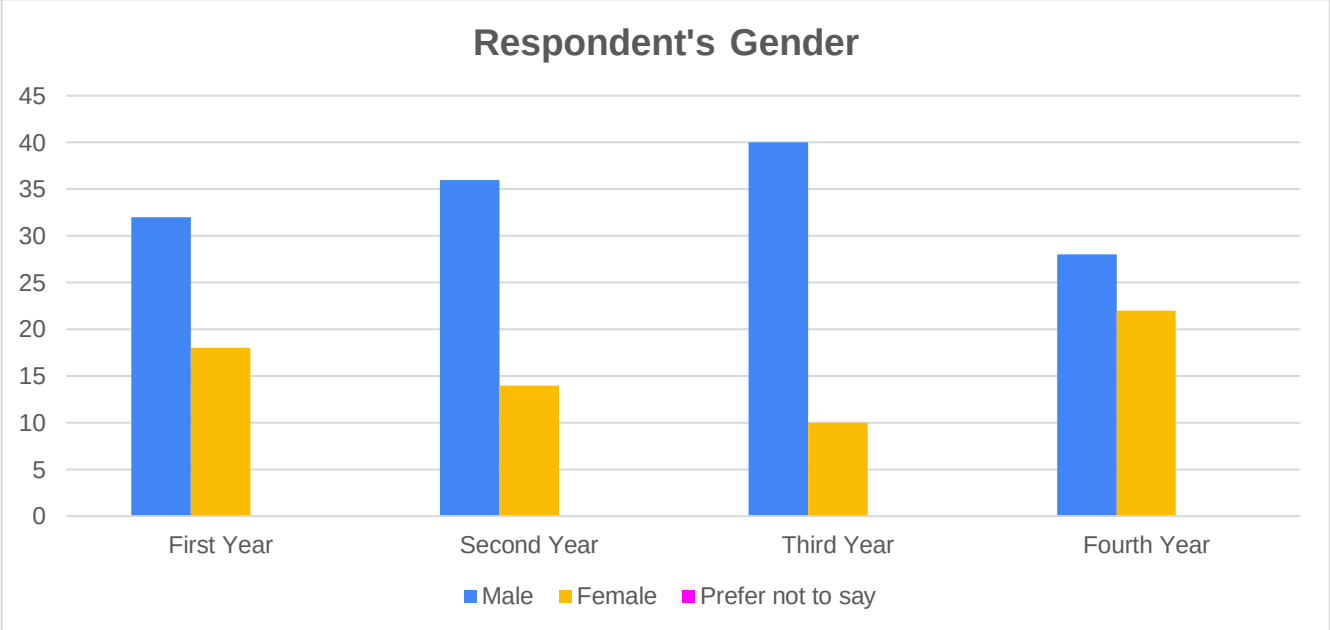

Figure 2. Gender Distribution of Respondents

Section B: Learning Preferences

Figure 3 indicates the preferred learning approach among the respondents. The preference for hybrid learning (51%) shows a strong inclination towards flexible learning models that combine online and in-person elements. A nearly equal portion (46.5%) prefers face-to-face learning, indicating that traditional methods

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue III March 2025

remain popular among many respondents. The small percentage (2.5%) expressing no preference indicates that most students are inclined towards one of the two modes.

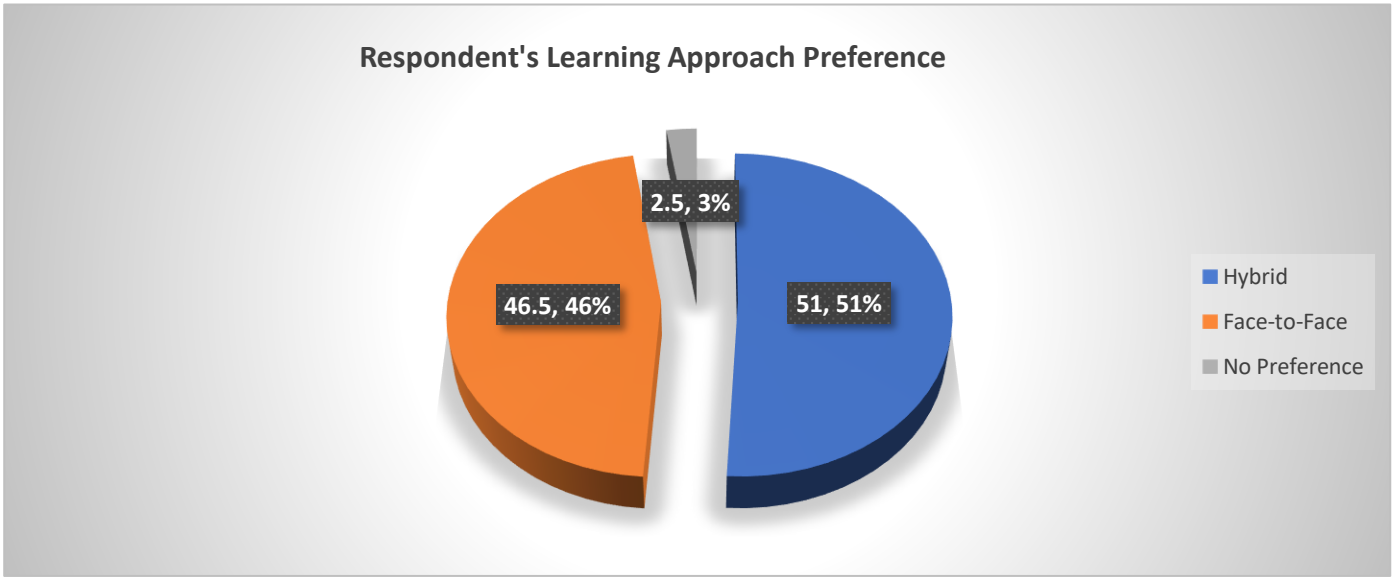

Figure 3. Preferred Learning Approach

Figure 4 highlights the reasons respondents selected their preferred learning approach. For hybrid learners, flexibility in scheduling is the primary reason (84.31%), reflecting the importance of adaptability in students' busy lives. Face-to-face learners emphasize better content understanding (92.47%) as a key reason for their preference, indicating a belief in the effectiveness of direct engagement with instructors. Access to instructor support is crucial for 70.97% of face-to-face learners, suggesting that the personal interaction and support offered in traditional settings are highly valued.

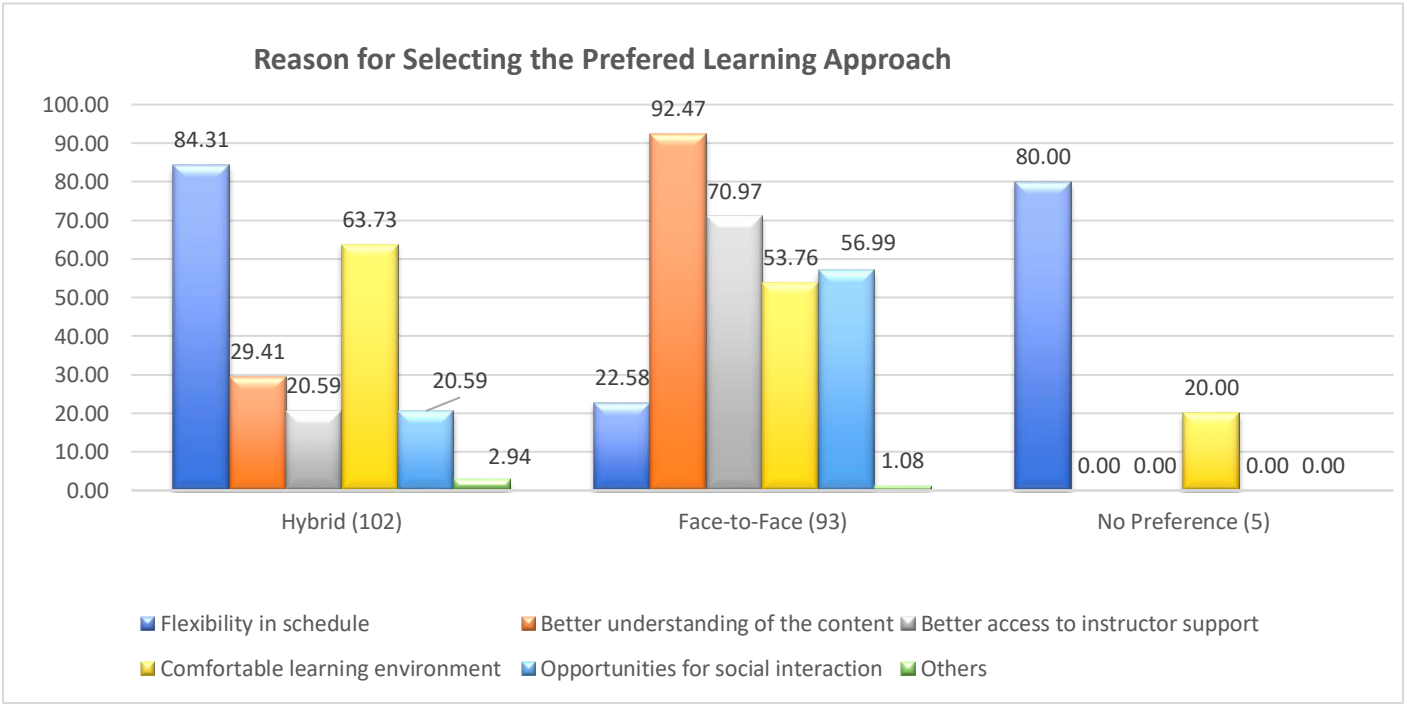

Figure 4. Reason for learning approach preference

Figure 5 illustrates how respondents engage with course material. Among hybrid learners, 33% find the material moderately engaging, while 32.5% find it quite engaging, suggesting that while there is some

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue III March 2025

engagement, it may not be as strong as desired. Face-to-face learners exhibit higher engagement levels, with 38% reporting the material as engaging, highlighting the effectiveness of direct interaction in promoting engagement.

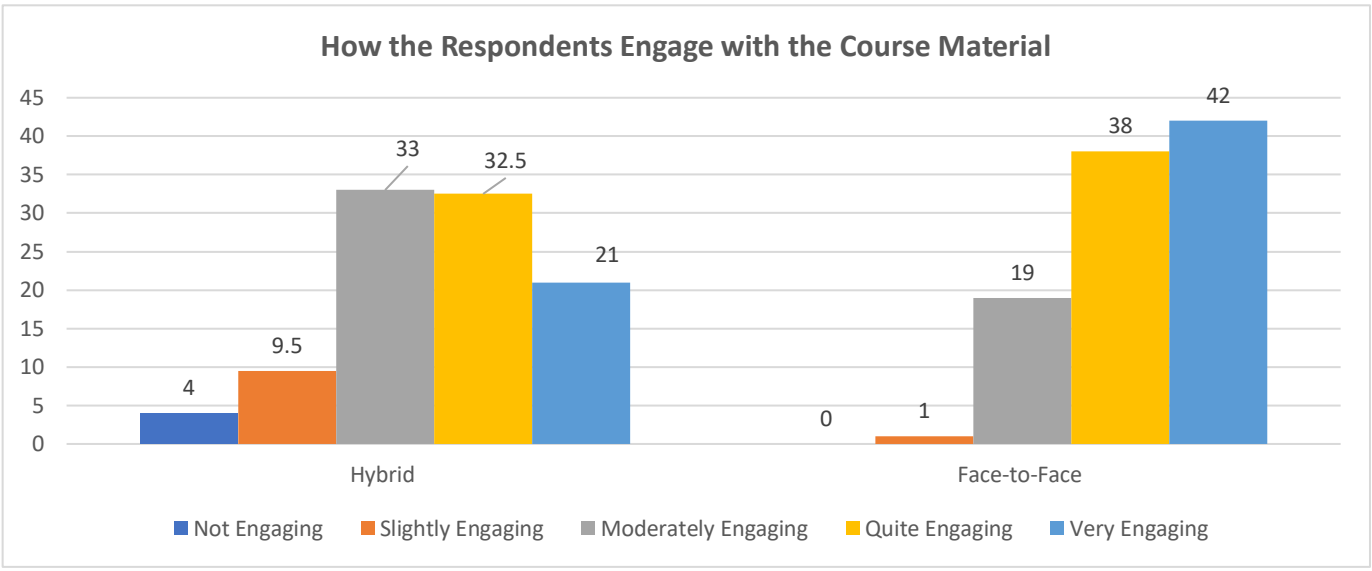

Figure 5. Engagement with course material

Figure 6 shows participation levels in discussions among hybrid and face-to-face learners. Hybrid learners report lower participation levels, with 35.5% participating sometimes and only 20% often, indicating potential barriers to engagement in hybrid formats. Conversely, face-to-face learners show more robust participation, with 31.5% sometimes participating and 30.5% often participating, suggesting that in-person settings foster greater interaction and collaboration.

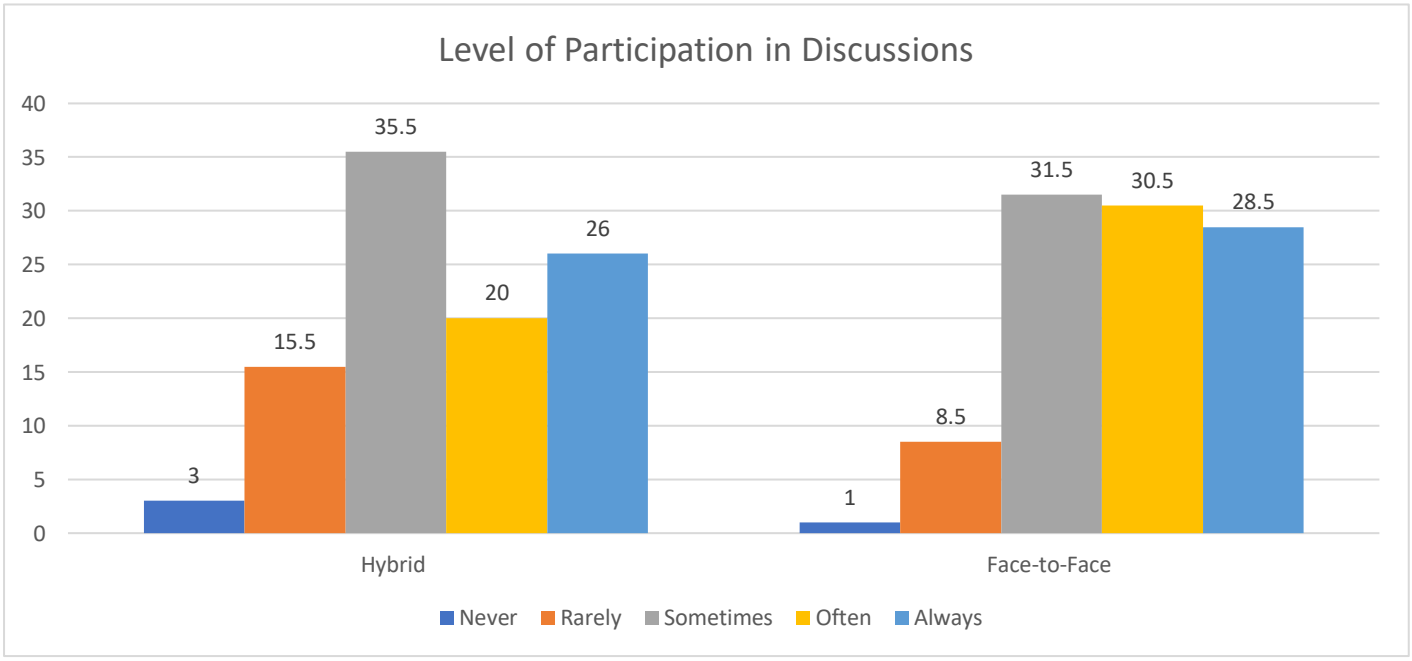

Figure 6. Participation in Discussions

Section C: Technological Challenges

Figure 7 depicts the frequency of internet connectivity issues reported by respondents. A significant 37.5% report experiencing internet issues sometimes, which could hinder their ability to engage effectively in hybrid

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue III March 2025

learning. The fact that 19% face these issues often underscores the importance of reliable technology in facilitating successful hybrid learning environments. Only 12% of respondents report never encountering issues, indicating that most students face some level of technological challenge.

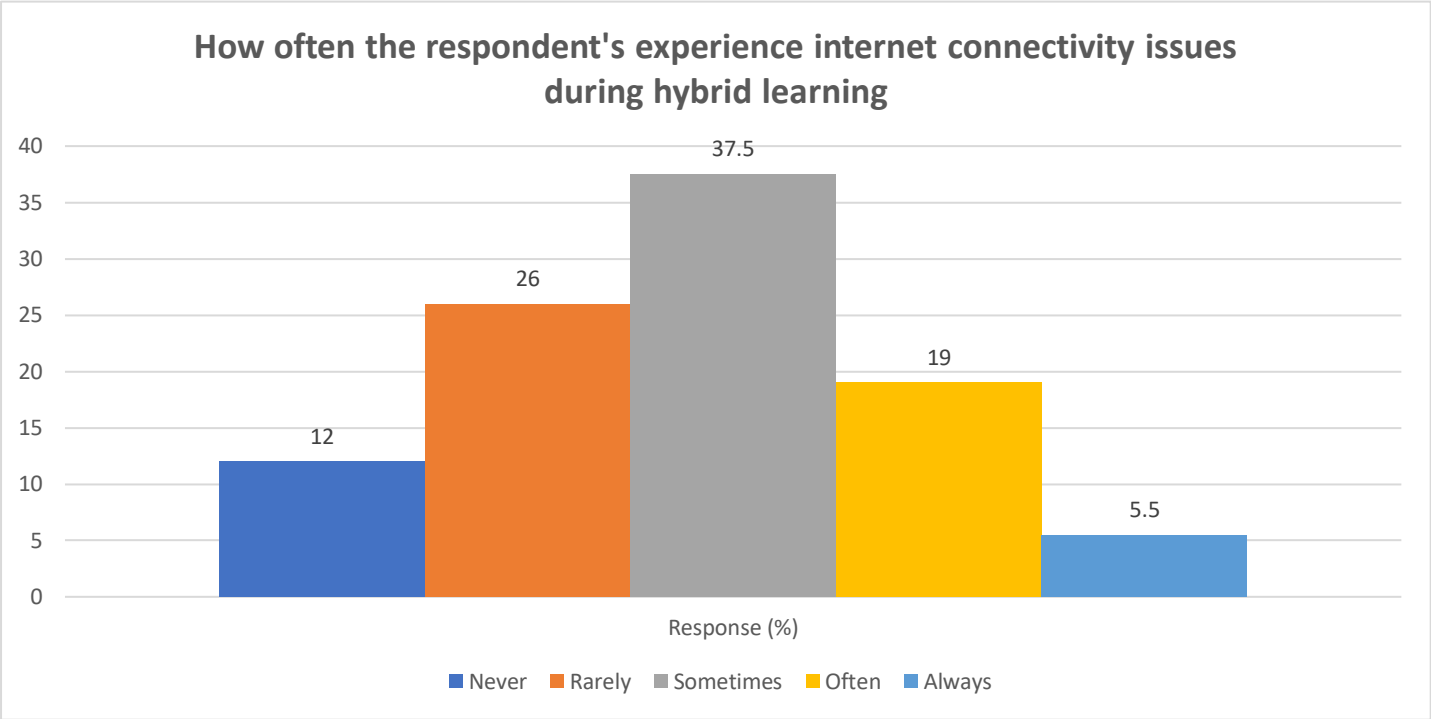

Figure 7. Frequency of Internet Connectivity Issues

Figure 8 highlights respondents' perceptions of technological issues affecting their learning ability. The data reveals that 41% believe technological issues significantly affect their ability to learn in a hybrid setting, which indicates the need for institutions to address these challenges. Additionally, 32.5% state that these issues sometimes impact their learning, indicating that while not universal, technological reliability is a critical factor in learning outcomes.

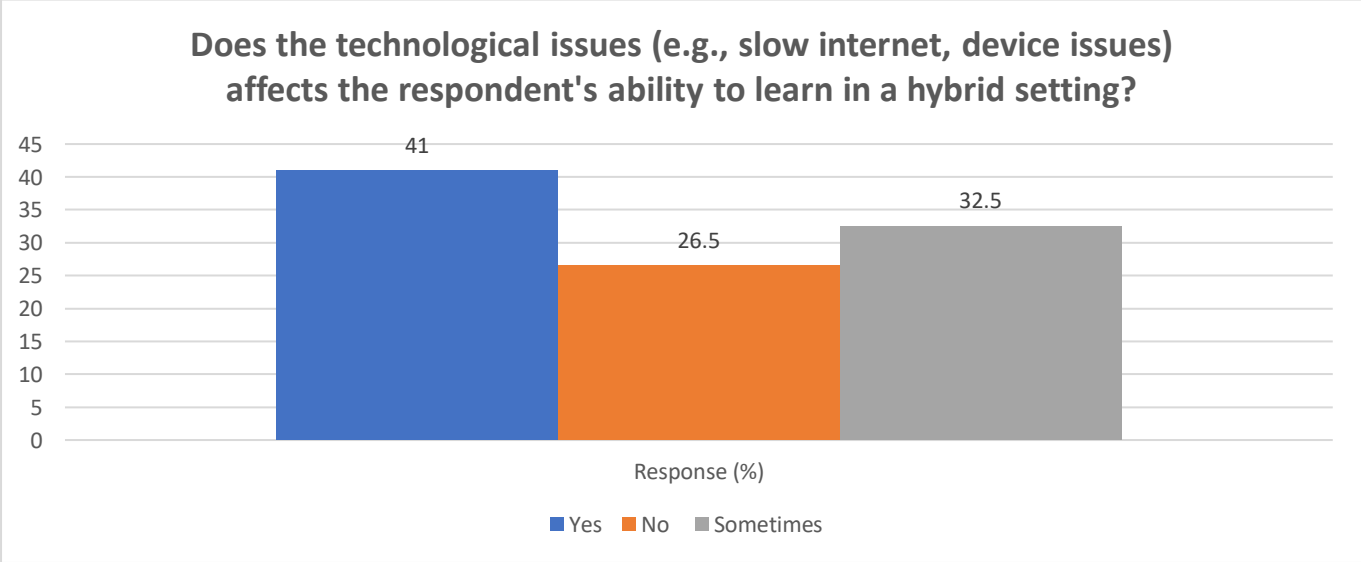

Figure 8 Impact of Technological Issues on Learning Ability

Figure 9 shows the availability of a dedicated study space among respondents. A 71% report having a dedicated study space is essential for effective learning, particularly in a hybrid format where home study is common. The 29% without a dedicated space may struggle with distractions and lack a conducive learning environment, impacting their study habits and performance.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue III March 2025

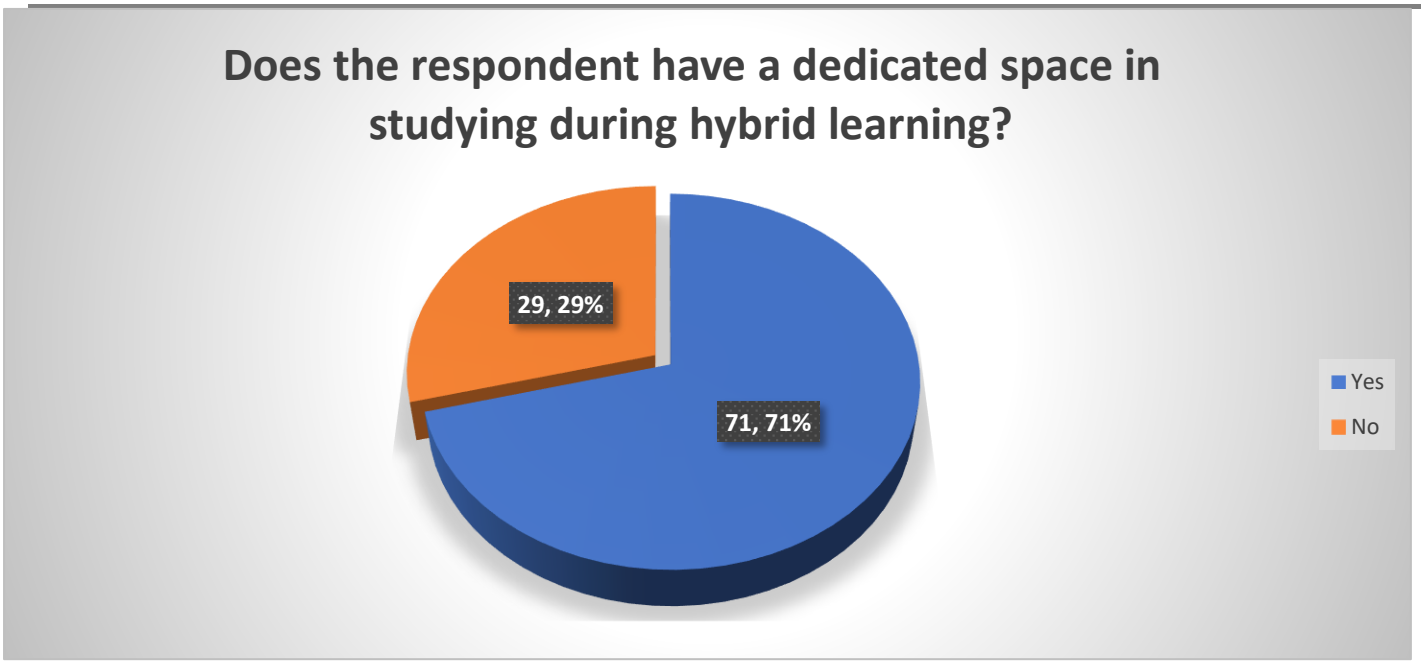

Figure 9. Availability of A Dedicated Study Space

Section D: Learning Outcomes

Figure 10 illustrates respondents' self-reported understanding of course content. Hybrid learners report moderate (37.5%) and quite well (32.5%) levels of understanding, suggesting that while they grasp the content, there may be room for improvement. In contrast, face-to-face learners show higher confidence in their understanding, with 47.5% indicating they understand the material quite well, emphasizing the effectiveness of in-person instruction.

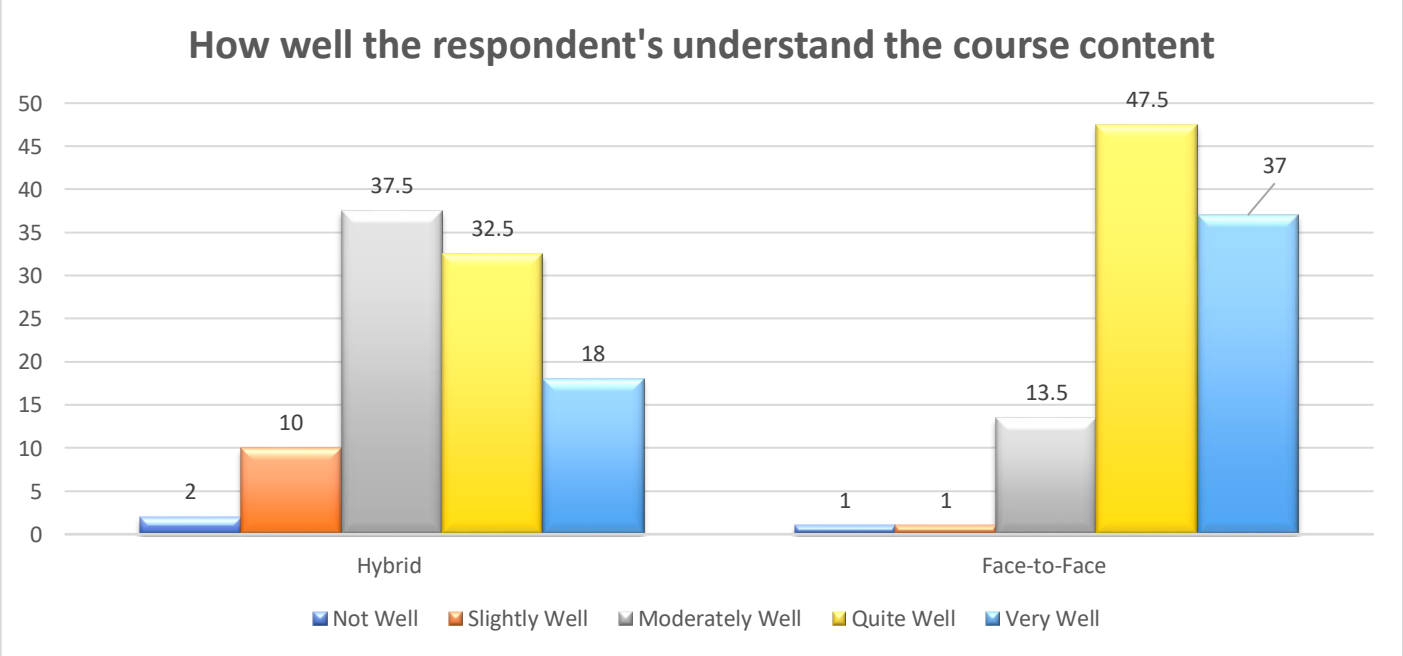

Figure 10. Understanding of Course Content

Figure 11 highlights respondents' perceptions of their learning outcomes and assessment performance. Most (55%) feel they achieve better learning outcomes with face-to-face learning, reflecting the traditional method's effectiveness in ensuring comprehension and retention. Only 27.5% prefer hybrid learning for better outcomes, which may prompt educators to reevaluate the effectiveness of hybrid strategies. The assessment performance

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue III March 2025

reveals that 51% report better performance in face-to-face settings, while 32.5% believe they perform equally well in both modes, indicating a preference for the traditional learning model.

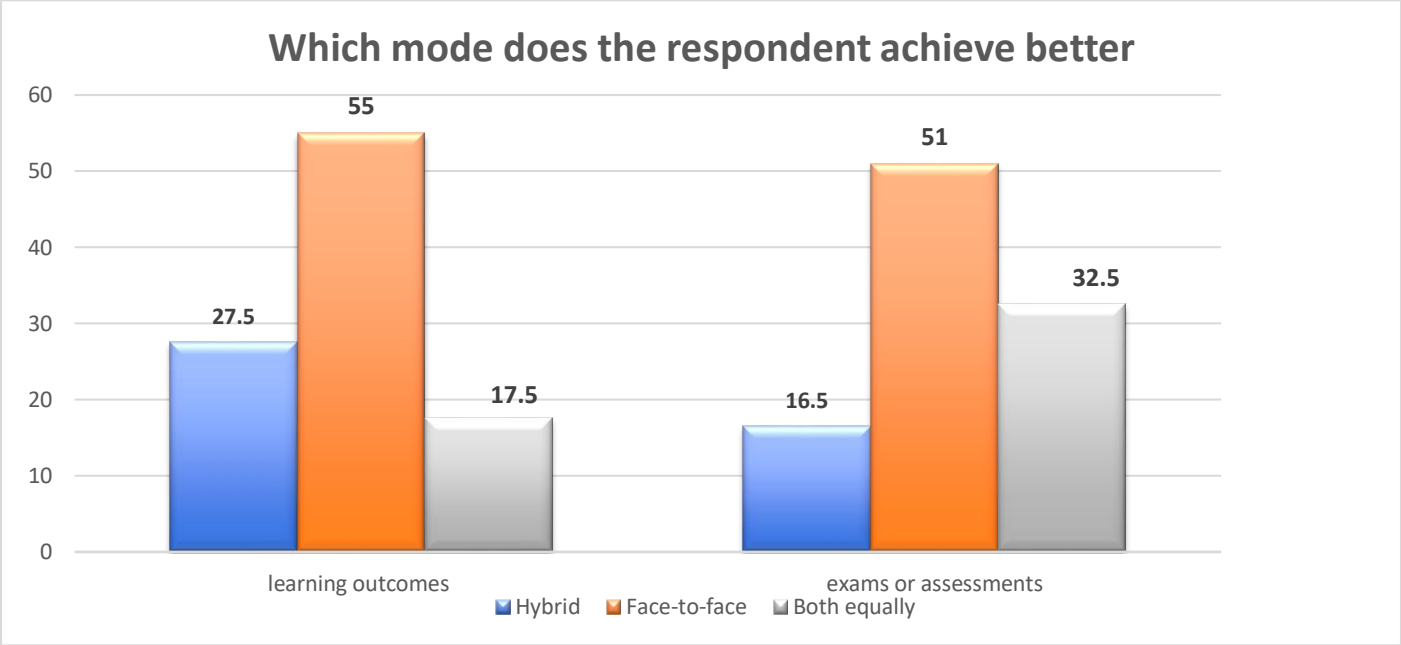

Figure 11. Learning outcomes and assessment performance

Section E: Additional Feedback

In the additional feedback section, students shared a wide range of suggestions. Many students desired improved facilities, such as more seating and charging ports for face-to-face classes. Most students appreciate the flexibility and convenience hybrid learning offers, particularly in reducing transportation and living costs. However, several students also emphasized the importance of face-to-face interaction for understanding the material better and fostering a more engaging and motivating learning environment.

DISCUSSION

The age distribution of the respondents shows that the majority are between 18-20 years old, which aligns with the typical college student age range. This suggests that this study's findings reflect the perspectives of younger college students, primarily those in the early stages of their undergraduate education. The gender distribution indicates a higher number of male respondents (68%), which could reflect gender enrollment patterns in the institution or program. However, it is important to consider that this gender imbalance may influence the generalizability of the results, particularly if learning preferences and challenges differ between genders.

The slight preference for hybrid learning (51%) over face-to-face learning (46.5%) highlights the increasing acceptance of flexible learning environments among college students. This shift could be attributed to the COVID-19 pandemic, which normalized hybrid and online learning. Hybrid learning's appeal seems to stem from its flexibility, as 84.31% of respondents cited this as a key reason. This is consistent with literature suggesting that hybrid models offer a better balance for students managing academic and personal responsibilities. On the other hand, the preference for face-to-face learning due to better content understanding (92.47%) highlights that many students still value traditional in-person instruction, particularly for complex subjects where real-time interaction with instructors can enhance comprehension. This division suggests that while hybrid learning offers practical advantages, students may feel more confident about their learning outcomes in a face-to-face setting.

The level of engagement in hybrid learning appears to be lower than face-to-face instruction, as seen in Table 7, where a smaller percentage of hybrid learners find the course material highly engaging. Face-to-face learners consistently reported higher levels of engagement, which could be attributed to the more structured

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue III March 2025

and immersive nature of in-person classes. Participation in discussions also reflects this trend; hybrid learners reported lower participation levels than their face-to-face counterparts. This finding aligns with existing research suggesting that the physical presence and immediate feedback in face-to-face settings encourage more active participation and engagement. In hybrid learning environments, students may feel more disconnected, which can reduce their motivation to engage fully with course materials and discussions.

Technological issues are a significant concern for students in hybrid learning environments. The data shows that over half of the respondents sometimes experience internet connectivity issues (37.5%) or often (19%). This supports findings from other studies that highlight infrastructure challenges as one of the primary drawbacks of online and hybrid learning models, particularly in regions where reliable internet access may be limited. Additionally, 41% of students reported that these issues impact their ability to learn, underscoring technology's critical role in the success of hybrid learning. Students will likely struggle with course content and engagement without consistent access to the necessary technological resources. This finding emphasizes the need for institutions to ensure adequate technological support and resources are available to students, particularly those who may not have access to reliable internet or dedicated study spaces.

The results show that face-to-face learners report higher levels of understanding of course content, with 47.5% stating that they understand the material quite well compared to 32.5% of hybrid learners. This reinforces the notion that while hybrid learning offers flexibility, it may not be as effective for certain learners regarding deep comprehension of course material. Face-to-face settings provide more opportunities for real-time feedback and clarification of complex topics, which may explain the better performance in assessments reported by face-to-face learners (51%). The slight preference for face-to-face learning in terms of overall learning outcomes suggests that despite the advantages of hybrid learning, traditional in-person education remains the preferred mode for achieving higher academic performance.

The qualitative component of this study, conducted through focus group discussions, provided deeper insights into student experiences with hybrid and face-to-face learning. The following themes emerged from the qualitative analysis:

1. Flexibility vs. Structure: Hybrid learners appreciated the flexibility of online learning but noted difficulties in maintaining self-discipline. In contrast, face-to-face learners emphasized the importance of structured learning environments in fostering accountability and focus.

2. Instructor Accessibility and Support: Many face-to-face learners highlighted the ease of accessing instructors for immediate clarification of concepts, whereas hybrid learners expressed frustration over delayed responses in online settings.

3. Engagement and Peer Interaction: Hybrid students reported feeling isolated, citing a lack of real-time peer interactions. Face-to-face learners described a more collaborative and engaging classroom experience that enhanced their motivation.

4. Technological Challenges: Participants in hybrid learning emphasized persistent connectivity issues, device limitations, and distractions at home as major hindrances to their learning process.

5. Learning Preferences and Outcomes: While some hybrid learners appreciated the autonomy in managing their schedules, others expressed concerns about reduced comprehension due to the lack of direct instructor interaction.

These qualitative findings support the quantitative results by illustrating the nuanced experiences of students in both learning modalities. They provide additional evidence that while hybrid learning offers flexibility, it requires strong self-discipline and access to reliable technological infrastructure. Conversely, face-to-face learning fosters engagement and better student-instructor interactions, which many participants found beneficial for their academic performance.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue III March 2025

The results of this study are consistent with prior research highlighting the trade-offs between hybrid and face-to-face learning. While hybrid models offer greater flexibility and accessibility, they often have technological challenges and lower engagement levels. On the other hand, face-to-face learning is seen as more effective for

content understanding and academic performance, particularly in subjects requiring complex cognitive engagement. Future studies could further explore how hybrid models can be optimized to address these challenges while maintaining the flexibility that students value. Institutions may also consider providing better technological infrastructure and support to bridge the gap between these two learning approaches.

CONCLUSIONS

The findings of this study highlight significant differences between hybrid and face-to-face learning approaches regarding student engagement and learning outcomes. The preference for hybrid learning, driven by the need for flexibility, underscores the importance of accommodating students' diverse schedules in today's educational landscape. However, face-to-face learners' superior engagement and learning outcomes suggest that direct interaction with instructors fosters a more effective learning environment.

Additionally, the technological challenges experienced by hybrid learners emphasize the need for improved infrastructure and support systems to enhance their educational experiences. Overall, this study suggests that while hybrid learning offers advantages in flexibility, traditional face-to-face methods remain essential for fostering deep understanding and strong academic performance. Future educational strategies should consider these insights to balance flexibility with the effectiveness of instructional delivery, ultimately enhancing student engagement and success across learning modalities.

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