AN ASSESSMENT OF STUDENTS' PERCEPTIONS OF HYFLEX LEARNING IN HIGHER EDUCATION

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ABSTRACT

Abstract—This study investigates students' perceptions of the effectiveness of Hybrid-Flexible (HyFlex) learning in higher education. A total of 400 undergraduate students from the Faculty of Humanities and Social Sciences at Suan Sunandha Rajabhat University were selected using simple random sampling. Data were collected through an online questionnaire developed from relevant theoretical frameworks and validated by three experts. Descriptive statistics, including percentage, mean, and standard deviation, were used to analyze the data.

The findings indicate that students hold highly positive perceptions toward HyFlex learning. They particularly value its flexibility, the ability to choose learning modalities, and the convenience of remote access. Students also reported benefits such as time and cost savings, as well as the opportunity to review recorded lectures at their own pace. Moreover, the technological support provided by the university—especially live-streaming systems and lecture recordings—contributed to a more accessible learning experience.

However, several challenges were identified. Students expressed concerns about limited social interaction, feelings of disconnection from peers, technological difficulties, and decreased motivation in self-directed online learning environments. These issues highlight the need for instructional strategies that enhance social presence and learner engagement across different modalities.

Overall, the study suggests that HyFlex learning is an effective and relevant instructional approach for contemporary higher education, but it requires continuous improvement in interaction design, technological support, and motivation enhancement to optimize student learning experiences.

Keywords— Higher Education, HyFlex Learning, Self-directed Learning, Student Perception

OBJECTIVES OF THE RESEARCH

To examine students' perceptions toward the Hybrid-Flexible (HyFlex) instructional approach.

INTRODUCTION

The rapid advancement of information and communication technology has driven continuous adaptations in instructional systems within higher education. These developments, combined with broader societal and educational shifts, have accelerated the adoption of online and blended learning formats. Among these formats, Hybrid-Flexible (HyFlex) learning has received increasing attention. The HyFlex model allows learners to select their mode of participation—attending face-to-face classes, joining synchronous online sessions, or engaging in asynchronous online learning—based on their needs and circumstances.

The model's growing popularity stems from its capacity to support flexible participation and accommodate diverse learner preferences. In contrast to traditional distance education, which typically relies on asynchronous delivery with limited interaction, the HyFlex approach integrates multiple learning modalities and emphasizes flexibility, accessibility, and learner autonomy.

Despite these benefits, learners' experiences with HyFlex instruction can vary depending on the modality they choose. Technological readiness, engagement, and self-regulation are critical factors that shape learners' perceptions of its effectiveness. Previous research suggests that learner satisfaction is influenced by the quality of instructional design, communication processes, and access to learning resources (Raes et al., 2020; Li & Wang, 2024).

The literature further indicates that HyFlex environments may enhance self-directed learning skills and promote engagement when supported by interactive digital tools. Because the model accommodates diverse student needs, it is considered a promising instructional approach in contemporary higher education. Accordingly, the present study examines students' perceptions of the effectiveness of HyFlex instruction in a higher education context, with the aim of identifying strengths, limitations, and potential areas for improving HyFlex implementation to better support learners.

LITERATURE & THEORY

1.1. Concepts and Principles of HyFlex

The term "HyFlex Learning" originates from the combination of Hybrid and Flexible learning. The Hybrid component refers to a learning format that allows students to participate in real-time instruction, primarily through face-to-face synchronous learning. Students may choose to attend classes in person (On-site, Synchronous) or join virtual classrooms (Online, Remote Synchronous) through videoconferencing platforms such as Zoom, MS Teams, Google Meet, or Webex.

The Flexible component refers to instructional designs that allow learners greater autonomy in managing their learning process. Curriculum developers are encouraged to construct flexible course structures aligned with learners' diverse learning preferences and needs. This flexibility includes providing students with the option of On-Demand learning, in which recorded instructional videos can be accessed at any time—expanding learning opportunities beyond

those found in traditional hybrid formats. Consequently, learners are offered three modes of participation: on-site synchronous learning, remote synchronous learning, and asynchronous on-demand learning.

As students are provided with multiple pathways for participation, the assessment system must also be diversified to ensure that evaluation methods align appropriately with each mode of learning. This is essential for achieving the intended learning outcomes and ensuring that students receive equitable and meaningful assessments across all modalities.

Beatty (2010) conceptualized Hybrid-Flexible (HyFlex) learning as an instructional approach designed to provide students with autonomy and flexibility by allowing participation through face-to-face, synchronous online, or asynchronous online modes while ensuring pedagogical equivalency across all modalities. Subsequent research has reinforced these foundational principles, emphasizing that well-designed HyFlex environments can promote learner autonomy, accessibility, and comparable learning outcomes regardless of the chosen mode (Raes et al., 2020; Li & Wang, 2024). Building on Beatty's framework, James et al., (2024) further elaborates on the practical challenges and implications of HyFlex implementation in higher education. According to James, HyFlex environments inherently promote greater learner autonomy, positioning instructors primarily as facilitators while requiring students to assume full responsibility for monitoring and managing their own learning. However, James highlights a key challenge: instructors must simultaneously manage learners across two distinct environments—online and on-site—which can complicate instructional coordination and interaction. Moreover, the high degree of autonomy offered by HyFlex may lead some students to struggle, particularly those lacking effective goal-setting and self-monitoring strategies. As a result, James emphasizes the need for instructors to actively cultivate students' self-regulated learning skills, while encouraging learners to leverage the flexibility of HyFlex to identify their learning preferences, set meaningful goals, and evaluate their progress. This body of literature collectively underscores that while HyFlex offers significant benefits in flexibility and learner-centeredness, its success depends heavily on instructional design, technological readiness, and the development of learners' self-regulation skills.

The HyFlex learning model integrates on-site synchronous instruction, remote synchronous participation, and remote asynchronous learning to offer learners multiple pathways for engaging with course content. The on-site mode provides immediate feedback and direct interaction, while the synchronous online mode supports real-time communication through digital platforms, requiring sufficient technological readiness and learner self-regulation. The asynchronous mode allows students to access recorded instructional materials at their convenience, though it limits opportunities for immediate feedback and demands a high degree of responsibility and sustained attention. Aligned with Beatty's (2010) core HyFlex principles—student choice, equivalency, reusability, and accessibility— each modality must deliver comparable learning experiences through coherent curriculum design and diversified assessment practices that support equal learning outcomes across all participation modes Kaewrattanapat, 2022)

Figure 1 HyFlex Learning with Active Learning Through Interactive Teaching from SSRU College
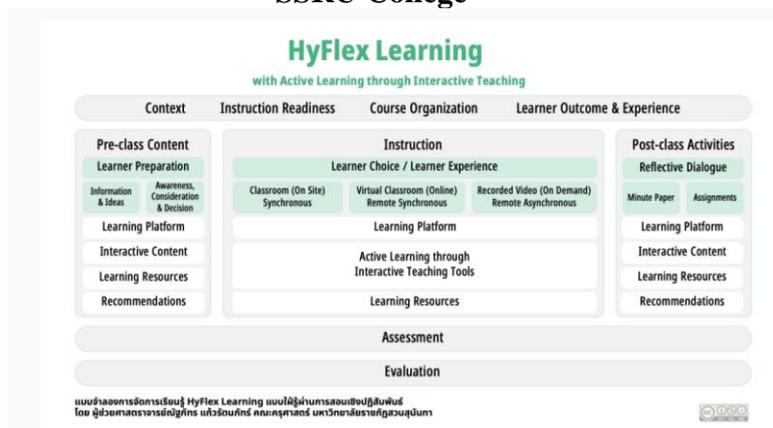
1.2. Related Works or Discussion

Autthapon Intasena (2024) examined the effectiveness of the Hybrid-Flexible (HyFlex) learning model in improving reading comprehension among secondary school students in Thailand. The study involved needs analysis, development of a HyFlex instructional model, and implementation with a sample group. Drawing on Beatty's (2010) conceptualization, Intasena emphasized that HyFlex is not merely a technological integration but a flexible learning approach that enables students to choose among face-to-face, synchronous online, and asynchronous online participation. The findings indicated that Thai learners are well-positioned for HyFlex adoption due to widespread access to digital devices, particularly smartphones. Experimental results showed significant improvement in students' reading comprehension post-intervention, demonstrating that HyFlex is an effective and flexible alternative for enhancing language learning and holds strong potential for future instructional practices. Complementing these findings, Wendy Athens (2023) examined the factors that influence students' decisions to select particular modes of learning and how these factors affect learning outcomes and overall satisfaction. Her study compared academic performance, sense of connection with instructors and peers, and student satisfaction between those enrolled in HyFlex courses and those in traditional classroom-based instruction. The investigation focused on three key dimensions related to students' choice of learning modality: self-regulatory factors, motivational factors, and contextual factors. Contextual factors included considerations such as commuting distance, work schedules, and personal responsibilities. The findings revealed that students prioritized convenience and flexibility when choosing their mode of learning. At the same time, students reported experiencing a stronger sense of connection with their instructors, suggesting that HyFlex environments—when well designed—can support both autonomy and relational engagement.

A review of the literature indicates that HyFlex learning environments have strong potential to enhance students' self-directed learning skills, particularly in less structured learning contexts. Studies also suggest that student engagement increases when digital tools facilitate online discussion and interaction between instructors and learners. Furthermore, research shows

that HyFlex instruction can effectively address diverse learner needs; however, additional investigation is required to better understand the factors that influence student engagement and academic achievement within HyFlex settings.

RESEARCH METHODOLOGY

The population of this study consisted of 2,517 undergraduate students enrolled in the Faculty of Humanities and Social Sciences at Suan Sunandha Rajabhat University. From this population, a sample of 400 students was selected using a simple random sampling technique, ensuring that each individual had an equal probability of being included in the study. This sampling method was chosen to minimize selection bias and to enhance the representativeness of the sample in relation to the broader student population.

Data were collected through a structured questionnaire designed to examine students' perceptions of Hybrid-Flexible (HyFlex) learning in higher education. The instrument comprised two sections: (1) demographic information, prior experiences with HyFlex learning, preferred modes of participation, and initial perceptions of HyFlex; and (2) Likert-scale items assessing students' perceptions of HyFlex instruction. The questionnaire was administered online, and all responses were collected electronically to facilitate efficient data management.

RESILTS

The results reveal distinct patterns in students' engagement across the HyFlex learning instructional approach.

Figure 2 Modes of Participation in a HyFlex Learning Course
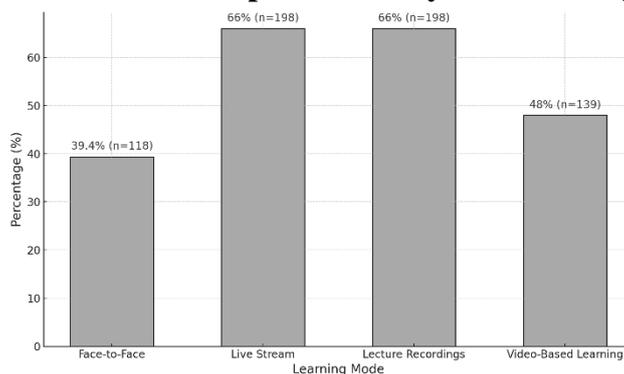
The analysis shows that 39.4% (n=118) of students participated through face-to-face instruction, whereas a larger proportion engaged in live-stream sessions and accessed lecture recordings, both at 66% (n=198). Additionally, 48% (n=139) utilized video-based learning resources. These findings indicate that while in-person learning remains relevant, most students rely heavily on both synchronous and asynchronous online formats, reflecting a clear preference for the flexibility offered by the HyFlex model.

Table 3 Students' Perceptions of the HyFlex Learning Model

Perceptions/Opinions	$\bar{x}$	S.D.
1. Convenient and flexible	4.4	0.772
2. Time-saving	4.42	0.739
3. Able to learn at one's own pace, review content, and watch recorded videos	4.46	0.751
4. The presence of instructors in the classroom creates trust in learning and encourages questioning	4.21	0.805
5. Technology for video recording and live streaming facilitates learning	4.29	0.800
6. Able to attend classes online from remote locations	4.56	0.700
7. Understanding of content and learning activities	4.18	0.847
8. Social interaction	3.71	1.089
9. Safety and privacy	4.41	0.765
10. Cost-saving	4.61	0.697
11. Options to attend in-person classes simultaneously with online lectures	4.49	0.738
12. Appropriate measurement and assessment	4.30	0.780
13. Supporting materials aid in learning	4.35	0.768

The analysis of students' perceptions of the HyFlex learning model shows that overall responses were highly positive across multiple dimensions. The highest-rated item was cost-saving ($\bar{x}$ = 4.61, S.D. = 0.697), indicating that students strongly valued the reduced financial burden associated with HyFlex participation. This was followed by the ability to attend classes online from remote locations ($\bar{x}$ = 4.56, S.D. = 0.700), and the opportunity to learn at one's own pace through reviewing recorded content ($\bar{x}$ = 4.46, S.D. = 0.751). Students also expressed strong agreement regarding the convenience and flexibility of HyFlex learning ($\bar{x}$ = 4.40, S.D. = 0.772) and the option to attend in-person classes alongside online lectures ($\bar{x}$ = 4.49, S.D. = 0.738).

Perceptions related to technology support, such as video recording and live streaming, were similarly positive ($\bar{x}$ = 4.29, S.D. = 0.800), reflecting student confidence in technological tools used for HyFlex delivery. Students also reported favorable views on safety and privacy ($\bar{x}$ = 4.41, S.D. = 0.765) and on the availability of supporting materials that aid learning ($\bar{x}$ = 4.35, S.D. = 0.768).

Lower ratings were observed for social interaction ($\bar{x}$ = 3.71, S.D. = 1.089), suggesting that opportunities for interpersonal engagement may be less robust in HyFlex environments. Perceptions of the presence of instructors fostering trust and encouraging questioning received a moderate mean score ($\bar{x}$ = 4.21, S.D. = 0.805), indicating room for enhancing interaction quality across modalities.

Overall, the results indicate that students perceive HyFlex learning as convenient, flexible, technologically supportive, and beneficial in terms of cost and accessibility. However, aspects related to social interaction remain an area requiring further pedagogical attention.

To further understand the challenges students encounter while engaging in HyFlex learning, the study examined the limitations and obstacles perceived by learners. Table 3 summarizes the mean scores and standard deviations of the key difficulties reported.

Table 4 Limitations and Obstacles of Learners in HyFlex Learning

Limitations and Obstacles	x̄	S.D.
1. Feel disconnected from classmates, with distance in communication	3.72	1.099
2. Technology problems related to equipment/devices	3.52	1.250
3. Lack of motivation, problems with concentration in online learning systems and self-directed learning	3.63	1.161
4. Coordination problems (organizing learning formats, managing home distractions, commuting to class, etc.)	3.51	1.190
5. Problems with instructional content design, excessive workload or homework	3.39	1.240
6. Problems learning how to use online learning and live streaming	3.22	1.308

Table 4 illustrates the limitations and obstacles experienced by students in HyFlex learning environments. The results indicate that learners faced a range of challenges, with mean scores between 3.22 and 3.72, reflecting moderate to relatively high levels of concern.

The most prominent challenge was feeling disconnected from classmates and experiencing communication distance (M = 3.72, S.D. = 1.099). This suggests that despite the flexibility afforded by HyFlex learning, students often perceived reduced social presence and limited peer interaction, which may negatively affect engagement and overall learning satisfaction.

The second highest concern involved lack of motivation, concentration difficulties, and challenges with self-directed learning (M = 3.63, S.D. = 1.161). This highlights the struggle many students face in maintaining focus and self-regulation within less structured online environments, underscoring the importance of providing adequate support for autonomous learning.

Technology-related issues, particularly those involving equipment or devices, were also notable (M = 3.52, S.D. = 1.250), indicating that technological readiness remains a barrier for some learners. In addition, coordination problems—such as organizing learning formats, managing home distractions, and commuting when required—were reported at a moderate level (M = 3.51, S.D. = 1.190).

Concerns regarding instructional content design, excessive workload, or homework (M = 3.39, S.D. = 1.240) point to the need for careful alignment of course requirements across different learning modalities. The lowest-rated, though still meaningful, challenge was learning how to use online learning platforms and live-streaming tools (M = 3.22, S.D. = 1.308), suggesting that

while technical literacy poses some difficulties, it is less problematic than social and motivational factors.

Overall, these findings indicate that although HyFlex learning provides substantial flexibility, it simultaneously presents challenges related to social connectedness, self-regulation, and technological infrastructure that must be addressed to enhance the quality of the learning experience.

The limitations identified in HyFlex learning correspond closely with Zimmerman's (2000) Self-Regulated Learning (SRL) framework, which emphasizes learners' abilities to plan, monitor, and regulate their own learning behaviors. Items with relatively high mean scores—such as lack of motivation, difficulties with concentration, and challenges in self-directed learning—suggest that many students may not possess sufficient self-regulatory skills to manage the autonomy inherent in HyFlex environments. According to SRL theory, students who struggle with self-motivation, attention control, and strategy use are less capable of sustaining engagement when external structure is reduced. The findings indicate that learners may face difficulties initiating learning tasks, maintaining focus during online sessions, and managing their own study schedules—behaviors central to effective self-regulation. Thus, the obstacles reported in HyFlex learning environments reflect gaps in students' self-regulatory processes, reinforcing Zimmerman's assertion that autonomous learning formats require well-developed self-management skills to achieve successful learning outcomes.

CONCLUSION

The present study analyzed survey findings in relation to the following hypothesis: HyFlex learning enhances flexibility in accessing course content, promotes student engagement, and positively influences academic achievement in higher education. It was further hypothesized that students with prior experience in HyFlex learning would hold positive attitudes toward the future use of this instructional model. In essence, HyFlex learning is expected to increase flexibility in content access while expanding opportunities for learner participation.

The results of the study clearly support this hypothesis. Findings indicate that HyFlex learning plays a significant role in enabling students to access instructional materials through multiple modalities—whether attending in-person classes, participating in real-time online sessions, or reviewing recorded lectures. Such flexibility allows learners to select the mode of participation that best fits their needs. Data presented across the tables demonstrate that a large proportion of students chose live-streaming and recorded lectures, reflecting a strong preference for flexible scheduling and on-demand access to course content.

Additionally, students perceived HyFlex learning as beneficial in allowing them to study at their own pace, revisit content as needed, and reduce both travel time and associated costs. These advantages help students better manage their daily responsibilities and academic workloads. Flexibility in time, location, and learning modality contributes substantially to increasing learner engagement, as it allows students to choose the mode of instruction most suitable to their circumstances and constraints at any given moment.

The findings of this study are consistent with Beatty's (2010) framework, which emphasizes that HyFlex learning empowers students by allowing them to choose their preferred mode of participation. This aligns with the preferences of the participants in the present study, who valued flexibility and opted to engage in both face-to-face and online formats depending on their circumstances. Such flexibility reduces time and financial burdens while enabling learners to feel a greater sense of control over their learning—an important factor associated with intrinsic motivation.

The results also correspond with the work of Wendy Athens (2023), who highlighted the significance of self-regulatory capacity, motivation, and personal contextual factors—such as commuting distance, employment commitments, and family responsibilities—in shaping learners' choices in HyFlex environments. Students in this study prioritized convenience above all other factors, which helps explain the growing popularity of HyFlex learning and its positive association with higher satisfaction levels.

However, despite the advantages, learners still expressed a need for strong connections with instructors and peers, suggesting that social presence remains a critical element of effective HyFlex implementation. The study also identified challenges related to learner motivation, particularly within online components, where students may experience procrastination, reduced focus, or inconsistent self-discipline. These issues reflect the inherent difficulty of learning environments that rely heavily on student responsibility and self-management.

Additionally, some students encountered technological constraints, including unstable internet access and inadequate devices, which can hinder online participation. As a result, obstacles related to peer interaction, technological readiness, and instructors' ability to manage and integrate technology effectively all play an essential role in determining the overall success of HyFlex learning environments.

Overall, the findings of the study support the hypothesis that HyFlex learning enhances students' flexibility in accessing instructional content, promotes engagement, and contributes positively to their learning experiences in higher education. Learners demonstrated a strong preference for the freedom to choose among on-site, synchronous online, and asynchronous modes, reflecting the fundamental principles outlined by Beatty (2010). This flexibility enabled students to manage their time more effectively, reduce travel-related burdens, and exercise greater control over their learning processes, thereby strengthening intrinsic motivation.

The results further align with Athens' (2023) emphasis on the role of self-regulatory capacity, motivational factors, and personal contextual demands in shaping learners' decisions to participate in HyFlex learning. Students in this study prioritized convenience and adaptability, which significantly contributed to their satisfaction and preference for HyFlex environments. However, consistent with theoretical perspectives on self-regulated learning, the study also revealed challenges associated with sustaining motivation, managing concentration, and maintaining self-discipline—particularly in online or asynchronous components, where external structure is reduced.

Moreover, issues related to social connection and technological readiness emerged as persistent barriers. Students expressed a need for stronger interaction with instructors and peers, suggesting that enhancing social presence remains essential for improving engagement and learning effectiveness. Technological obstacles— such as unstable internet connections or insufficient devices—also impeded the learning process for some students. These challenges highlight the importance of adequate technical support and pedagogical strategies that reduce cognitive load, such as co-teaching models proposed by Cumming et al. (2024), which can distribute instructional responsibilities and enhance monitoring of student participation across modalities.

In sum, while HyFlex learning demonstrates significant potential to expand access, increase learner autonomy, and improve overall learning satisfaction, its success depends on thoughtful instructional design, targeted support for self-regulated learning, enhanced social interaction mechanisms, and reliable technological infrastructure. Addressing these factors will be crucial for ensuring that HyFlex learning fully realizes its promise as an effective, inclusive, and sustainable instructional model in contemporary higher education.

Based on the findings of this study, future research should examine how flexibility preferences, as identified among the participants, interact with students' self-regulatory abilities to influence learning outcomes in HyFlex environments. Studies that further explore the impact of social presence—particularly the desire for stronger connections with instructors and peers— would provide deeper insight into addressing the interactional challenges observed. Given the technological barriers reported by students, comparative research across institutions with varying levels of digital readiness is recommended. Additionally, investigations into strategies such as co-teaching or enhanced instructional scaffolding may reveal effective ways to support students who struggle with motivation and self-discipline in online modalities.

ACKNOWLEDGEMENTS

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