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Enhancing Student Success in HyFlex Learning: Examining the Role of Experiential Learning and HyFlex Design Principles

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Abstract: Purpose: This study examines how experiential learning and HyFlex design principles contribute to student success in higher education. Drawing upon Beatty's HyFlex framework, the study investigates the relationships among experiential learning, learner choice, equivalency, accessibility, reusability, student satisfaction, and academic self-efficacy.

Design/methodology/approach: A quantitative survey-based experimental design was employed. University students were randomly assigned to evaluate either a traditional in-person learning environment or a HyFlex learning environment. Data from 223 valid responses were analyzed using Structural Equation Modeling (SEM) to examine the proposed relationships among the study constructs.

Findings: The results indicate that experiential learning positively influences all four HyFlex design principles. Accessibility and reusability were found to be important predictors of student satisfaction, while accessibility demonstrated a strong positive relationship with academic self-efficacy. Contrary to expectations, learner choice did not significantly influence student satisfaction and exhibited a negative relationship with academic self-efficacy. Students in HyFlex environments reported higher levels of learner choice, accessibility, and reusability than students in traditional in-person learning environments.

Originality/value: This study extends the HyFlex literature by empirically validating Beatty's design principles within a higher education context and identifying the mechanisms through which experiential learning contributes to student success. The findings highlight the importance of accessibility and reusability in HyFlex course design and suggest that flexibility alone may be insufficient to enhance student outcomes. The study provides practical guidance for educators seeking to develop more effective and engaging HyFlex learning environments.

Keywords: HyFlex learning; experiential learning; student success; academic self-efficacy; student satisfaction; higher education; flexible learning

1. Introduction

The rapid advancement of educational technologies and changing student expectations have encouraged higher education institutions to explore increasingly flexible approaches to teaching and learning. Among these approaches, Hybrid-Flexible (HyFlex) learning has emerged as a promising instructional model that allows students to choose how they participate in a course while maintaining access to equivalent learning opportunities. Unlike traditional face-to-face instruction, HyFlex learning provides students with the flexibility to attend classes in person or participate remotely, thereby accommodating diverse learning preferences, personal circumstances, and scheduling needs.

The growing interest in HyFlex learning has been accompanied by increasing adoption across higher education institutions. Proponents argue that HyFlex learning combines the strengths of traditional classroom instruction and online learning by providing flexibility without sacrificing engagement and interaction. Students can benefit from greater autonomy over their learning experiences, while institutions can expand access to education and better accommodate diverse student populations. However, the successful implementation of HyFlex learning remains challenging. Simply providing multiple participation options does not guarantee a positive learning experience. Students may encounter difficulties related to engagement, access to learning resources, interaction with instructors and peers, and the effective use of technology. Consequently, understanding the factors that contribute to student success in HyFlex environments has become an important concern for both researchers and practitioners.

To address these challenges, Beatty (2007, 2019) proposed the HyFlex course design framework, which is built upon four core principles: learner choice, accessibility, equivalency, and reusability (Beatty, 2007, 2019). Learner choice allows students to select participation modes that best fit their needs. Accessibility ensures that students have equitable access to learning resources and participation opportunities. Equivalency emphasizes that alternative participation modes should lead to comparable learning outcomes, while reusability encourages learning artifacts generated in one mode to be available and useful across all modes. Collectively, these principles provide a theoretical foundation for designing effective HyFlex learning environments.

Although recent studies have expanded our understanding of HyFlex implementation and student experiences, empirical evidence examining how individual HyFlex design principles influence student success remains limited. Existing studies have primarily focused on the implementation of HyFlex courses, student perceptions of flexibility, and comparisons between different learning modes. Less attention has been given to understanding how individual HyFlex design principles contribute to student outcomes such as satisfaction and academic self-efficacy. Furthermore, limited research has examined the role of experiential learning within HyFlex environments despite growing recognition that practical, hands-on learning experiences are essential for student engagement, skill development, and long-term academic success.

Experiential learning emphasizes learning through active participation, reflection, and the application of knowledge to real-world situations. Prior research has demonstrated that experiential learning enhances student engagement, motivation, and knowledge retention. However, implementing experiential learning within flexible learning environments presents unique challenges because educators must ensure that all students, regardless of participation mode, receive comparable learning opportunities. As a result, experiential learning may play a critical role in strengthening the core principles of HyFlex course design and ultimately improving student success.

This study investigates how HyFlex design principles and experiential learning influence student success in higher education. Specifically, the study examines the relationships among learning mode, experiential learning, the four HyFlex principles, and two key indicators of student success: student satisfaction and academic self-efficacy. Drawing on data collected from university students, this research provides empirical evidence regarding the mechanisms through which HyFlex course design contributes to successful learning experiences.

This study makes three contributions to the literature. First, it provides empirical validation of Beatty's HyFlex design principles within a higher

education context. Second, it identifies the specific HyFlex principles that most strongly influence student satisfaction and academic self-efficacy. Third, it extends the HyFlex literature by demonstrating the important role of experiential learning in strengthening effective course design and enhancing student success. The findings offer practical guidance for educators and institutions seeking to design more effective and engaging HyFlex learning environments.

2. Literature Review

2.1 HyFlex Learning

Higher education institutions have increasingly adopted flexible learning approaches to accommodate diverse student needs and changing educational environments (Gaimaro & Lomellini, 2021; Weerasinghe & Fernando, 2017). Among these approaches, Hybrid-Flexible (HyFlex) learning has emerged as a promising instructional model that combines the advantages of face-to-face and online learning (Miller et al., 2021). HyFlex, a term introduced by Beatty (2007), refers to a course design in which students can choose their mode of participation while pursuing equivalent learning outcomes (Beatty, 2007).

Unlike traditional classroom learning, which requires students to attend in person, or distance learning, which is conducted entirely online, HyFlex learning provides students with multiple participation options within the same course (Kohnke & Moorhouse, 2021; Mahmud et al., 2026). Students may participate in person, synchronously online, or asynchronously through recorded materials and learning resources. This flexibility enables learners to select participation modes that best suit their personal, professional, and academic circumstances (Dikilitas & Fructuoso, 2023; Wilson & Alexander, 2021).

The growing popularity of HyFlex learning is largely attributed to its ability to increase flexibility, accessibility, and student autonomy. Previous studies have reported positive outcomes associated with HyFlex implementation, including increased participation, improved access to learning opportunities, and enhanced student satisfaction (Barr & Luo, 2025; Mahmud et al., 2026). However, the effectiveness of HyFlex learning depends heavily on course design. Merely offering multiple participation options does not guarantee successful learning experiences. Consequently, understanding the design principles that contribute to successful HyFlex implementation remains an important area of investigation.

2.2 Experiential Learning

Experiential learning refers to the process through which individuals acquire knowledge through direct experience, reflection, and application (D. A. Kolb, 2014). According to Kolb (1984), learning occurs through a cyclical process involving concrete experience, reflective observation, abstract conceptualization, and active experimentation (D. A. Kolb, 2014). Experiential learning emphasizes learning by doing and encourages students to apply theoretical knowledge to real-world situations (A. Y. Kolb & Kolb, 2009; Rahmi, 2024).

In higher education, experiential learning has been associated with improved student engagement, motivation, critical thinking, and knowledge retention (Kim & Park, 2023; D. A. Kolb et al., 2014). Practical activities such as case studies, simulations, projects, internships, and problem-solving exercises allow students to connect academic concepts with authentic situations and develop transferable skills (McCarthy, 2010; Pole & McGee, 2025). These benefits have made experiential learning an increasingly important component of contemporary course design.

Despite its recognized value, implementing experiential learning within flexible learning environments presents challenges (De Freitas & Neumann, 2009; Salinas-Navarro et al., 2024). Educators must ensure that meaningful learning experiences are available to all students regardless of participation mode (A. Y. Kolb & Kolb, 2017). Consequently, experiential learning may play an important role in strengthening the effectiveness of HyFlex course design by promoting active engagement and facilitating equitable learning experiences across different participation modes.

2.3 Student Success

Student success is a multidimensional concept that encompasses students' academic achievement, engagement, persistence, and overall learning experiences. Previous studies have measured student success using a variety of indicators, including academic performance, retention, motivation, satisfaction, and self-efficacy (Bandura, 1997, 2014;

Shoaib et al., 2024).

This study focuses on two widely recognized indicators of student success: student satisfaction and academic self-efficacy. Student satisfaction reflects students' evaluation of their educational experiences and is associated with retention, continued enrollment, and positive learning outcomes (Al Hassani & Wilkins, 2022; Styron Jr, 2010). Satisfied students are more likely to remain engaged in their courses and demonstrate stronger commitment to their studies (Elom et al., 2023).

Academic self-efficacy refers to an individual's belief in their ability to successfully perform academic tasks and achieve desired learning outcomes (Bandura, 1997). According to Bandura (1997), self-efficacy influences students' motivation, persistence, and performance. Students with higher levels of academic self-efficacy are more likely to engage in challenging learning activities, persist when encountering difficulties, and achieve stronger academic outcomes (Schunk, 2023).

Given the importance of both satisfaction and self-efficacy, understanding how HyFlex learning environments influence these outcomes is essential for evaluating the effectiveness of flexible learning designs.

2.4 HyFlex Design Principles

Beatty (2007, 2019) proposed four core principles that serve as the foundation of effective HyFlex course design: learner choice, equivalency, accessibility, and reusability. Learner choice refers to providing students with meaningful alternatives for participation and enabling them to choose learning modes that align with their needs and preferences (Beatty, 2007, 2019). This principle reflects the flexible nature of HyFlex learning and empowers students to take greater responsibility for their educational experiences.

Equivalency emphasizes that alternative participation modes should lead to comparable learning outcomes. While learning activities may differ across modes, students should receive equivalent opportunities to achieve course objectives regardless of how they participate.

Accessibility focuses on ensuring that all students have equitable access to learning activities, resources, and technologies. Effective HyFlex courses must accommodate diverse learner needs and provide appropriate support for participation across multiple modes.

Reusability involves making learning artifacts generated in one participation mode available to learners in other modes. Resources such as recorded lectures, discussion materials, notes, and learning activities can be shared across participation formats to enhance learning opportunities and reinforce course content.

Collectively, these principles provide a theoretical foundation for understanding how HyFlex learning environments can promote student success. Recent studies have continued to emphasize that the successful implementation of these principles depends on thoughtful instructional design, technological support, and equitable learning experiences across participation modes (Mahmud et al., 2026; Mulenga & Shilongo, 2025; Roberts et al., 2024). Building on these principles, this study examines how learning mode and experiential learning influence the four HyFlex design principles and how these principles subsequently affect student satisfaction and academic self-efficacy.

3. Research Model and Hypotheses Development

3.1 Research Model

This study examines how learning mode and experiential learning influence student success through the four core principles of HyFlex course design: learner choice, equivalency, accessibility, and reusability. Drawing upon Beatty's (2007, 2019) HyFlex framework, the model proposes that the learning environment and the degree of experiential learning shape students' perceptions of these design principles, which subsequently influence student success measured through satisfaction and academic self-efficacy.

The model further recognizes that experiential learning may strengthen students' learning experiences by increasing engagement, promoting active participation, and facilitating the application of knowledge in authentic contexts. Consequently, experiential learning is expected to positively influence the implementation and effectiveness of HyFlex design principles. (**Figure 1**) presents the proposed research model.

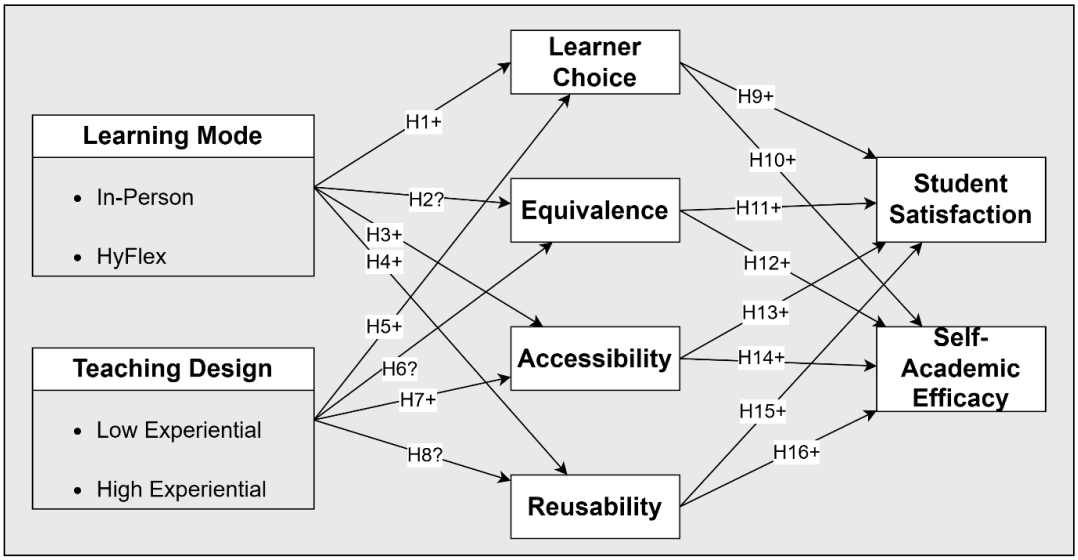

Figure 1. Research Model

3.2 Learning Mode and HyFlex Design Principles

One of the defining characteristics of HyFlex learning is the flexibility it provides students in determining how they participate in a course. Unlike traditional face-to-face learning environments, HyFlex courses offer multiple participation options that allow students to select learning modes based on their preferences, schedules, and circumstances. As a result, students in HyFlex environments are expected to perceive greater learner choice than those in traditional in-person settings.

H1: Learner choice is higher in HyFlex learning environments than in traditional in-person learning environments.

The principle of equivalency emphasizes that students should achieve comparable learning outcomes regardless of their chosen participation mode. Because both traditional and HyFlex environments are designed to support learning, differences in perceived equivalency may be limited.

H2: Learning mode influences perceived equivalency.

Accessibility refers to students' ability to access learning materials, activities, and participation opportunities. HyFlex environments typically provide additional technological resources and flexible access mechanisms that may enhance students' perceptions of accessibility.

H3: Accessibility is higher in HyFlex learning environments than in traditional in-person learning environments.

Reusability focuses on the availability and reuse of learning resources across participation modes. The extensive use of digital learning materials in HyFlex courses may increase students' opportunities to access and reuse course resources.

H4: Reusability is higher in HyFlex learning environments than in traditional in-person learning environments.

3.3 Experiential Learning and HyFlex Design Principles

Experiential learning emphasizes active participation, reflection, and the application of knowledge to authentic situations. Students who engage in experiential learning activities are more likely to perceive meaningful learning opportunities and greater engagement with course content.

Because experiential learning encourages students to actively interact with learning activities, it may enhance perceptions of learner choice by providing multiple pathways for participation and knowledge application.

H5: Experiential learning positively influences learner choice.

Experiential learning activities are generally designed to provide meaningful learning opportunities for all students. Consequently, experiential learning may contribute to stronger perceptions of equivalency across participation modes.

H6: Experiential learning positively influences equivalency.

Experiential learning frequently involves the use of

multiple resources, learning activities, and instructional supports. These features may increase students' perceptions of accessibility.

H7: Experiential learning positively influences accessibility.

Experiential learning often generates learning artifacts such as reports, reflections, presentations, and project outputs that can be shared and reused by learners. Therefore, experiential learning may contribute to greater perceptions of reusability.

H8: Experiential learning positively influences reusability.

3.4 HyFlex Design Principles and Student Satisfaction

Student satisfaction reflects students' overall evaluation of their educational experiences. Prior research suggests that learning environments that provide flexibility, equitable opportunities, accessible resources, and meaningful learning support are more likely to generate positive student experiences.

Learner choice may increase students' satisfaction by providing autonomy and flexibility in how they participate in learning activities.

H9: Learner choice positively influences student satisfaction.

Equivalency ensures that students perceive comparable learning opportunities regardless of participation mode, which may enhance satisfaction.

H10: Equivalency positively influences student satisfaction.

Accessibility enables students to effectively engage with learning materials and activities, thereby supporting positive educational experiences.

H11: Accessibility positively influences student satisfaction.

Reusability provides students with continued access to learning resources that can reinforce understanding and support learning beyond individual class sessions.

H12: Reusability positively influences student satisfaction.

3.5 HyFlex Design Principles and Academic Self-Efficacy

Academic self-efficacy refers to students' confidence in their ability to successfully complete academic tasks and achieve desired learning outcomes. Learning environments that provide flexibility, support, and access to learning resources may contribute to stronger self-efficacy beliefs.

Students who perceive greater learner choice may experience higher levels of control over their learning processes, potentially strengthening academic self-efficacy.

H13: Learner choice positively influences academic self-efficacy.

Students who perceive equivalent learning opportunities may be more confident in their ability to succeed regardless of participation mode.

H14: Equivalency positively influences academic self-efficacy.

Accessibility to learning resources and instructional support may facilitate successful learning experiences and strengthen students' confidence in their academic abilities.

H15: Accessibility positively influences academic self-efficacy.

Similarly, the availability and reuse of learning resources may provide additional opportunities for review and reinforcement, contributing to stronger academic self-efficacy.

H16: Reusability positively influences academic self-efficacy.

4. Methodology

4.1 Research Design

This study employed a quantitative, between-subjects, scenario-based experimental survey design to examine the relationships among learning mode, experiential learning, HyFlex design principles, and student success. The design enabled comparisons between students' perceptions of traditional in-person and HyFlex learning environments while simultaneously examining the influence of experiential learning on the four core HyFlex design principles: learner choice, equivalency, accessibility, and reusability.

Participants were randomly assigned to one of two experimental conditions representing either a traditional in-person learning environment or a HyFlex learning environment. Each participant was presented with a written learning scenario describing the assigned instructional setting. After reviewing the scenario, participants completed a structured questionnaire measuring experiential learning, the four HyFlex design principles, student satisfaction, and academic self-

efficacy. All constructs were measured using previously validated instruments adapted for the context of HyFlex learning. Responses were recorded using ten-point Likert-type scales ranging from 1 (strongly disagree) to 10 (strongly agree).

The proposed research model was evaluated using Structural Equation Modeling (SEM). This analytical approach enabled the simultaneous assessment of the measurement model and the structural relationships among the latent constructs while accounting for measurement error. The analysis followed a two-stage procedure in which the reliability and validity of the measurement model were first established before testing the hypothesized structural relationships.

4.2 Participants and Data Collection

Ethics approval for the study was obtained from the Interdisciplinary Committee on Ethics in Human Research (ICEHR) at Memorial University of Newfoundland. Participants were recruited using a convenience sampling approach from undergraduate and graduate programs across the university through classroom announcements, student organizations, and campus-wide advertisements. Participation was voluntary, anonymous, and unrelated to students' academic performance. As an incentive, participants were eligible to enter a draw for gift cards upon completion of the survey.

Eligible participants were current university students who voluntarily agreed to participate in the study. Following informed consent, participants were randomly assigned to evaluate either a traditional in-person learning scenario or a HyFlex learning scenario before completing the questionnaire.

A total of 1,127 responses were initially collected. Responses were screened for completeness and data quality. Incomplete questionnaires, responses with insufficient completion times, and responses exhibiting inconsistent response patterns were removed. For the present study, only participants assigned to the traditional in-person and HyFlex experimental conditions were retained for analysis. Following the screening and selection procedures, the final analytical sample consisted of 223 valid responses.

The final sample represented a diverse student population across age groups, academic programs, and educational levels. Undergraduate and graduate students were both represented, and more than half of the participants had prior experience with the learning environment to which they were assigned.

4.3 Measures

The study examined seven primary constructs: experiential learning, learner choice, equivalency, accessibility, reusability, student satisfaction, and academic self-efficacy.

The four HyFlex design principles—learner choice, equivalency, accessibility, and reusability—were adapted from Beatty's (2007, 2019) HyFlex framework. Student satisfaction was measured using previously validated educational satisfaction scales, while academic self-efficacy was adapted from established self-efficacy measures. Experiential learning was measured using items reflecting students' perceptions of practical and real-world learning experiences.

4.4 Data Analysis

Structural Equation Modeling (SEM) using AMOS was employed to test the proposed research model. SEM was selected because it enables the simultaneous examination of multiple relationships among latent constructs and is widely used in educational and behavioural research.

Following established guidelines, the analysis proceeded in two stages. First, the measurement model was assessed through confirmatory factor analysis to evaluate reliability and validity. Second, the structural model was assessed to test the hypothesized relationships among the constructs.

Convergent validity was evaluated using factor loadings, composite reliability (CR), and average variance extracted (AVE). Model fit was assessed using multiple fit indices, including the chi-square to degrees-of-freedom ratio (χ^2/df), root mean square error of approximation (RMSEA), comparative fit index (CFI), and incremental fit index (IFI).

The results indicated acceptable reliability, validity, and overall model fit, supporting subsequent hypothesis testing.

5. Results

5.1 Sample Characteristics

The final sample consisted of 223 valid responses following data screening and quality control procedures. Participants represented a diverse range

of age groups, academic programs, and educational levels. The majority of respondents were between 18 and 24 years old, and both undergraduate and graduate students were represented. More than half of the participants had prior experience with the learning environment to which they were assigned, increasing the realism and validity of their evaluations. (**Table 1**) summarizes the demographic characteristics of the sample.

Table 1. Summary of Demographic Characteristics

Demographic Characteristic	Item	Percentage (%)
Gender	Female	41.58
	Male	57.10
	Non-Binary	0.33
	Prefer not to say	0.33
	Prefer to self-describe	0.66
Nationality	Newfoundland and Labrador	47.19
	Other provinces in Canada	32.34
	International	20.46
Degree	Bachelor of Business Administration	19.47
	Bachelor of Commerce	26.40
	Master of Business Administration	18.81
	Master of Science	14.19
	Others	18.48
	PhD	2.64
HyFlex Learning Experience	Yes	52.11
	No	47.89

5.2 Measurement Model Assessment

The measurement model was assessed through confirmatory factor analysis (CFA). Convergent validity was evaluated using factor loadings, composite reliability (CR), and average variance extracted (AVE). The results are presented in (**Table 2**).

All retained items exceeded the recommended factor loading threshold of 0.70. Composite reliability values ranged from 0.905 to 0.934, exceeding the recommended minimum value of 0.70. Average variance extracted values ranged from 0.657 to 0.740, surpassing the recommended threshold of 0.50. These results indicate satisfactory reliability and convergent validity for all constructs.

Table 2. Measurement Model Results

Factor	Items	Factor Loadings	CR	AVE
Experiential Learning	EL1	0.809	0.905	0.657
	EL2	0.790		
	EL3	0.840		
	EL4	0.763		
	EL5	0.849		
Learner Choice	L1	0.849	0.934	0.740
	L2	0.838		
	L3	0.860		
	L4	0.880		
	L5	0.874		
Equivalency	Eq1	0.859	0.909	0.715
	Eq2	0.883		

Continuation Table:

Factor	Items	Factor Loadings	CR	AVE
	Eq3	0.849		
	Eq4	0.788		
	A1	0.836		
	A2	0.813		
Accessibility	A3	0.811	0.909	0.667
	A4	0.877		
	A5	0.739		
	R1	0.814		
Reusability	R2	0.855	0.908	0.713
	R3	0.855		
	R4	0.852		
	S1	0.835		
	S2	0.781		
Satisfaction	S3	0.800	0.910	0.669
	S4	0.826		
	S6	0.846		
	SE1	0.777		
	SE2	0.828		
Academic Self-Efficacy	SE3	0.837	0.912	0.674
	SE4	0.855		
	SE5	0.807		

5.3 Common Method Bias Assessment

Because all study variables were collected using a self-administered questionnaire, the potential for common method bias (CMB) was assessed using Harman's single-factor test (Podsakoff et al., 2003). All measurement items were entered into an exploratory factor analysis without rotation. The results indicated that the first unrotated factor accounted for 24.69% of the total variance, which is well below the recommended threshold of 50%. Therefore, common method bias was not considered a significant concern in this study.

5.4 Structural Model Assessment

The overall structural model demonstrated acceptable fit to the data. The chi-square to degrees-of-freedom ratio ($\chi^2/df = 2.757$) was below the recommended threshold of 3.0. Additional fit indices also indicated acceptable model fit, including RMSEA = 0.089, IFI = 0.869, and CFI = 0.868. Collectively, these results suggest that the proposed model adequately represented the observed data.

5.5 Hypothesis Testing

Learning mode significantly influenced learner choice, accessibility, and reusability, while no significant relationship was observed with equivalency. Students in HyFlex learning environments reported higher levels of learner choice, accessibility, and reusability than students in traditional in-person learning environments.

Experiential learning positively influenced all four HyFlex design principles. The strongest relationship was observed between experiential learning and accessibility, followed by reusability, equivalency, and learner choice. These findings suggest that experiential learning contributes substantially to effective HyFlex course design.

The results further revealed that equivalency, accessibility, and reusability positively influenced student satisfaction. In contrast, learner choice did not significantly affect satisfaction.

With respect to academic self-efficacy, accessibility demonstrated a strong positive relationship, while learner choice and reusability exhibited significant negative relationships. Equivalency was not

significantly associated with academic self-efficacy. Overall, thirteen of the sixteen hypotheses were supported (see **Table 3**).

Table 3. Summary of Hypothesis Testing Results

Hypothesis	Path	P-value	β	Result
H1	Learning Mode → Learner Choice	<0.001	0.409	Supported
H2	Learning Mode → Equivalency	0.099	0.099	Unsupported
H3	Learning Mode → Accessibility	<0.001	0.207	Supported
H4	Learning Mode → Reusability	<0.001	0.197	Supported
H5	Experiential Learning → Learner Choice	<0.001	0.574	Supported
H6	Experiential Learning → Equivalency	<0.001	0.576	Supported
H7	Experiential Learning → Accessibility	<0.001	0.766	Supported
H8	Experiential Learning → Reusability	<0.001	0.655	Supported
H9	Learner Choice → Satisfaction	0.277	-0.059	Unsupported
H10	Equivalency → Satisfaction	<0.001	0.320	Supported
H11	Accessibility → Satisfaction	0.004	0.283	Supported
H12	Reusability → Satisfaction	<0.001	0.512	Supported
H13	Learner Choice → Self-Efficacy	0.005	-0.301	Supported
H14	Equivalency → Self-Efficacy	0.862	-0.019	Unsupported
H15	Accessibility → Self-Efficacy	<0.001	0.740	Supported
H16	Reusability → Self-Efficacy	<0.001	-0.584	Supported

6. Discussion

This study examined how learning mode and experiential learning influence student success through the four core HyFlex design principles of learner choice, equivalency, accessibility, and reusability. The findings provide several important insights into the design of effective HyFlex learning environments and contribute to the growing literature on flexible learning in higher education.

6.1 Experiential Learning Strengthens HyFlex Design

One of the most important findings of this study is the significant role of experiential learning in strengthening all four HyFlex design principles. Experiential learning demonstrated positive relationships with learner choice, equivalency, accessibility, and reusability, suggesting that practical learning experiences contribute substantially to the quality of HyFlex course design. These findings extend previous experiential learning research by demonstrating that experiential learning not only improves learning outcomes but also enhances the structural characteristics of flexible learning environments.

This finding is particularly important because discussions surrounding HyFlex learning often focus on technology and flexibility. The present study suggests that effective HyFlex learning depends not only on providing multiple participation modes but also on creating meaningful learning experiences that actively engage students. Experiential activities such as case analyses, projects, simulations, and problem-based learning may therefore serve as important mechanisms for improving the overall effectiveness of HyFlex courses.

6.2 Accessibility Emerges as a Critical Driver of Student Success

A second key finding is that accessibility consistently supported both satisfaction and self-efficacy, whereas reusability positively influenced satisfaction but demonstrated an unexpected negative relationship with self-efficacy. Students who perceived greater access to learning resources and greater opportunities to reuse learning materials reported higher levels of success.

These findings highlight the importance of designing HyFlex courses that provide students with continuous access to learning resources regardless of participation mode. Recorded lectures, shared learning materials, discussion archives, and digital resources may serve

as valuable learning supports that extend learning beyond the classroom. While flexibility is often viewed as the defining characteristic of HyFlex learning, the results suggest that accessibility and reusability may play a more direct role in shaping students' educational experiences.

From a practical perspective, institutions seeking to improve HyFlex learning should prioritize investments in technologies and instructional practices that increase resource accessibility and facilitate the reuse of learning materials across participation modes.

6.3 Learner Choice Alone Does Not Guarantee Student Success

Although learner choice is frequently regarded as a defining characteristic of HyFlex learning, the results suggest that flexibility alone may not guarantee positive learning outcomes. While students in HyFlex environments reported significantly higher levels of learner choice, learner choice did not positively influence satisfaction and was negatively associated with academic self-efficacy.

This finding suggests that providing students with greater flexibility may also introduce additional responsibility and self-management demands. Students who are given greater freedom in determining how they participate in a course may experience uncertainty regarding whether they are making effective learning decisions. As a result, flexibility without sufficient structure and support may not always lead to stronger perceptions of success.

These findings contribute to the growing recognition that effective flexible learning requires a balance between autonomy and guidance. While students value having choices, they may also require support mechanisms that help them navigate those choices successfully.

6.4 HyFlex Learning Can Provide an Effective Alternative to Traditional Instruction

The results indicate that students in HyFlex environments perceived higher levels of learner choice, accessibility, and reusability than students in traditional in-person learning environments. At the same time, no significant differences were observed in perceived equivalency. Collectively, these findings suggest that well-designed HyFlex courses can provide many of the benefits associated with flexible learning while maintaining comparable learning opportunities.

Student comments further revealed that flexibility, convenience, access to recorded resources, and the ability to balance personal commitments were among the most frequently cited advantages of HyFlex learning. These findings support the continued adoption of HyFlex approaches within higher education, particularly for institutions seeking to accommodate increasingly diverse student populations.

However, participants also identified challenges associated with HyFlex learning, including reduced interaction, difficulties adapting to new learning structures, and concerns regarding engagement. These findings reinforce the importance of intentional course design and faculty support in ensuring successful implementation.

6.5 Theoretical Implications

This study contributes to the HyFlex literature in three ways. First, it provides empirical support for Beatty's HyFlex design framework by demonstrating the importance of learner choice, accessibility, equivalency, and reusability in shaping student outcomes. Second, it extends existing HyFlex research by identifying accessibility and reusability as particularly important drivers of student success. Third, it integrates experiential learning into the HyFlex literature and demonstrates its role in strengthening effective course design.

6.6 Practical Implications

The findings suggest several practical recommendations for educators and institutions. First, experiential learning should be intentionally incorporated into HyFlex courses to promote engagement and strengthen learning experiences. Second, institutions should prioritize accessibility and reusability when developing HyFlex learning environments by ensuring that learning materials are available across participation modes. Third, educators should recognize that flexibility alone is insufficient and should provide students with appropriate guidance and support when navigating participation choices.

Collectively, these recommendations may help institutions design HyFlex learning environments that better support student success and long-term engagement.

7. Conclusion

This study examined the role of experiential learning and HyFlex design principles in promoting student success within higher education learning environments. Drawing upon Beatty's HyFlex framework, the study investigated how experiential learning and learning mode influence the four core HyFlex design principles—learner choice, equivalency, accessibility, and reusability—and how these principles subsequently affect student satisfaction and academic self-efficacy. The findings revealed that experiential learning positively influenced all four HyFlex design principles, highlighting its important role in strengthening HyFlex course design. Furthermore, accessibility and reusability emerged as important drivers of student satisfaction, while accessibility was also found to positively influence academic self-efficacy. These findings suggest that successful HyFlex learning environments require more than flexibility alone; they require intentional course design that supports meaningful learning experiences and access to learning resources.

This study contributes to the growing HyFlex literature in several ways. First, it provides empirical support for Beatty's HyFlex design framework within a higher education context. Second, it demonstrates that experiential learning plays a critical role in strengthening the effectiveness of HyFlex course design. Third, it identifies accessibility and reusability as particularly important factors influencing student success, thereby extending current understanding of how HyFlex learning environments support positive educational outcomes. Collectively, these findings contribute to the development of more effective and evidence-based approaches to flexible learning.

Several limitations should be acknowledged when interpreting the findings. First, the study was conducted using data collected from students at a single institution, which may limit the generalizability of the results to other educational contexts. Second, the study relied on self-reported perceptions, which may be influenced by individual experiences and response biases. Third, the cross-sectional nature of the study limits the ability to examine changes in perceptions over time. In addition, the study employed a scenario-based experimental design in which participants evaluated hypothetical learning environments rather than actual classroom experiences. Although this approach allowed for controlled comparisons between learning modes, students' perceptions may differ from those formed through direct participation in real HyFlex courses. Finally, while the study examined important indicators of student success, other outcomes such as academic performance, engagement, retention, and long-term learning effectiveness were beyond the scope of the present research. Furthermore, the study focused exclusively on students' perspectives. Factors related to instructors, instructional design practices, institutional support, and technological infrastructure were not examined and may also influence the effectiveness of HyFlex learning environments.

Future research may address these limitations by examining HyFlex learning across multiple institutions, disciplines, and cultural contexts. Longitudinal studies may provide additional insights into how students' perceptions and experiences evolve over time as they become more familiar with flexible learning environments. Future research may also investigate additional learning outcomes, including academic achievement, engagement, retention, and employability-related skills. Future studies could also examine authentic HyFlex course implementations and incorporate instructors' perspectives, institutional readiness, and technological capabilities to develop a more comprehensive understanding of successful HyFlex implementation. Furthermore, studies exploring the experiences of different student populations and course types may contribute to a more comprehensive understanding of effective HyFlex implementation.

As higher education institutions continue to expand flexible learning opportunities, understanding the factors that contribute to student success becomes increasingly important. The findings suggest that effective HyFlex learning depends not only on providing students with participation flexibility but also on embedding experiential learning opportunities and ensuring that learning resources remain accessible and reusable across participation modes. By focusing on these principles, educators and institutions can develop more effective learning environments that support diverse student needs while maintaining educational quality and student success.

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