



HyFlex Classroom Delivery in Post-Secondary Education: Perspectives of Faculty

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This study investigates faculty perceptions of the drivers and challenges to HyFlex (Hybrid-Flexible) delivery in post-secondary education. Based on responses from 106 faculty members across several academic schools and credential programs at a polytechnic institute in North America, the study outlines key challenges associated with HyFlex delivery. The results indicate that faculty generally recognize that students value this delivery model for its flexibility and ability to accommodate diverse learning preferences. Respondents ranked academic integrity, effective assessment practices, and accommodating diverse learning needs as the three most significant challenges in HyFlex delivery. In contrast, access to technology and workforce readiness were identified as the least significant challenges. Overall, the findings suggest that successful implementation of HyFlex requires a balanced approach that promotes flexibility while maintaining pedagogical integrity and supporting both faculty and student success in multi-access learning environments.

Keywords: HyFlex, Pedagogy, Blended learning, Mixed format delivery, Synchronous learning

Introduction

The rapid evolution of educational technologies and the growing demand for flexible learning have prompted post-secondary institutions to explore innovative delivery models. Among these, HyFlex (Hybrid-Flexible) format has emerged as a promising approach that allows students to choose between attending classes in person, participating online synchronously, or engaging asynchronously, without compromising access to course content or learning outcomes. Beatty (2021) uses the definition of HyFlex learning as “class sessions that allow students to choose whether to attend classes face-to-face or online, synchronously or asynchronously” (p. 77). Originally developed to increase accessibility and learner autonomy, the HyFlex model has gained renewed attention in the wake of the COVID-19 pandemic (Wong, Li, Chan, & Cheung, 2023), which accelerated the shift toward remote and hybrid instruction.

This renewed interest in HyFlex reflects a broader transformation in higher education, where the pandemic not only highlighted the need for flexible delivery models but also underscored the growing reliance on online learning as a primary mode of instruction. Although the pandemic made online learning a necessity, it was already trending and had become a mainstream phenomenon in education in the United States (Kentnor, 2015). Allen and Seaman (2017), Martin, Sun, & Westine (2020), and other researchers also point out that online learning had been increasing over the past two decades,

even before COVID-19. Contrary to the trend of declining enrollment in higher education in the United States, enrollment in online learning continued to rise in public institutions (Allen & Seaman, 2017). In this context, the COVID-19 pandemic further accelerated the need for alternative modes of course delivery to ensure continuity of education while addressing the challenges posed by remote learning (Bryson & Andres, 2020; Gamage et al., 2022). With advancements in information technology and the wider availability of the internet, distance education shifted from offline to online formats, and COVID-19 made online learning the dominant global delivery method (Martin, Sun, & Westine, 2020) during that period.

Even after the pandemic ended, institutions retained part of online delivery, and some programs now offer courses in blended and HyFlex modes to accommodate both in-person and online learners. At its core, the HyFlex delivery method provides learners with a flexible opportunity to learn at their own pace and in an environment in which they feel comfortable. HyFlex delivery of courses allows for a combination of both synchronous and asynchronous activities (Angelone et al., 2020; Butz & Stupnisky, 2016; Phillips & Phillips, 1994). Synchronous activities involve live, interactive online sessions where students and instructors meet at scheduled times. It may include video conferencing, chat functions, and collaborative tools to facilitate real-time discussions and engagement (Bernard et al., 2004; Fabriz et al., 2021). In contrast, asynchronous activities allow students to access course materials and complete assignments at their own pace and convenience. It may involve accessing recorded lectures, discussion boards, online quizzes, and other self-paced learning activities (Fabriz et al., 2021; Torio et al., 2023).

While HyFlex delivery provides an opportunity for the learners, the method has its own challenges. Kohnke and Moorhouse (2021), in a qualitative study, identified communication difficulties among students as a dominant theme and concluded that instruction delivered through the HyFlex mode was less effective than exclusively face-to-face teaching. Similarly, Bernard et al. (2004) emphasised that online and hybrid formats can compromise interaction quality, which is critical for learning outcomes. Although technological advancements have facilitated online learning, sustaining engagement and satisfaction remains a persistent challenge, prompting institutions to adopt strategies that balance the benefits of face-to-face interaction with the flexibility of online platforms (Chen et al., 2010; Gamage et al., 2022; Torio et al., 2023; Vaughan, 2007). Beatty (2019) acknowledges the potential benefits of HyFlex but cautions that its implementation requires substantial institutional support and faculty readiness, without which the model may lead to increased workload and diminished instructional quality. This concern is echoed by Butz and Stupnisky (2016), who found that hybrid and synchronous learning environments can increase cognitive load and stress for instructors managing multiple modalities simultaneously.

While HyFlex offers the potential to accommodate diverse learner needs and schedules, its implementation presents significant pedagogical, technological, and logistical challenges—particularly in applied learning environments. This study investigates faculty perceptions of HyFlex teaching in an applied learning environment, focusing on their attitudes, preferences, and perceived barriers. By analyzing survey responses from instructors across various disciplines and credential levels, the research aims to identify key trends in teaching modality preferences, challenges to HyFlex delivery, and faculty views on student preferences regarding instructional formats. As such, the main objective of the study is to examine faculty perceptions of HyFlex teaching formats, including their views on learner favorability and the types of challenges they associate with HyFlex based on their own attitudes. It is guided by three main research questions:

- How do faculty perceive learner attitudes toward HyFlex formats compared to their own attitudes?
- What types of challenges do faculty associate with HyFlex teaching formats?

- How do faculty attitudes toward HyFlex formats influence the types of challenges they prioritize?

The findings and discussions contribute to the growing body of literature on flexible learning and offer practical recommendations for institutions, educators, and students navigating the complexities of multi-access education.

Methodology

This research employed a questionnaire survey approach to assess the implementation and effectiveness of the HyFlex (Hybrid-Flexible) delivery model at a post-secondary institute in North America. Faculty members were recruited for participation via institutional email invitations sent to all teaching staff across the various academic schools and programs. Participation was entirely voluntary, anonymous, and confidential, and respondents were encouraged to provide honest feedback. Informed consent was obtained from all participants, and confidentiality was secured by de-identifying all data. Participants could withdraw from the study at any time without providing reasons. The survey was designed to gather faculty experiences, attitudes, and perceptions of HyFlex teaching, comprising a mixture of closed- and open-ended questions to permit both quantitative and qualitative data collection. The survey instrument was based partially on the 2023 Pan-Canadian Report on Digital Learning Trends (CDLRA, 2023). To ensure alignment with the objective of the research, the survey was adapted to incorporate questions specifically addressing HyFlex delivery and faculty experiences within the institute. Ethical approval was obtained from the institute's research ethics board prior to conducting the survey.

Results

The questionnaire was distributed to over 500 faculty members at the institute. Of the 125 responses received, only 106 were considered valid, as 19 respondents completed only the demographic section and did not answer any questions relevant to the study. Therefore, only 106 responses were included in the subsequent analysis. One of the questions related to the HyFlex mode of teaching and learning focused on faculty members' experience with teaching in the HyFlex format. In response to the statement "I prefer teaching in a multi-access (HyFlex format)," 70.75% of the faculty members selected "None", indicating that they do not have experience teaching HyFlex courses. Among those who do have experience, 11.32% reported teaching 1 to 5 courses in this format; another 11.32% reported teaching 6 to 10 courses, and only 6.6% indicated experience with more than 10 courses in the HyFlex format.

Faculty members were asked to rate their level of agreement with the preference for teaching in the HyFlex format. As shown in Figure 1, 41.8% of respondents either "Disagree" or "Strongly disagree" with the statement indicating a preference for this instructional method. Conversely, only 8.2% "Strongly agree" and 13.3% "Agree," resulting in just over 21% expressing a positive view of HyFlex teaching. Additionally, 36.7% reported a neutral stance, neither agreeing nor disagreeing. These results indicate that while some faculty members are supportive of the HyFlex format, a significant proportion remains ambivalent or expresses a lack of preference for its implementation. However, when asked about learners, a shift in faculty responses is evident, as shown in Table 1. Faculty were asked to indicate their perception in response to the question: "To what extent do you believe students prefer having the option to learn in a multi-access (HyFlex) format?" Among those who responded, 52.1% indicated that students either "Strongly prefer" or "Somewhat prefer" to learn in a HyFlex format. Moreover, even among faculty who "Strongly Disagree" or "Disagree" with the format, 20.8% still perceived that students prefer learning in HyFlex. This suggests that faculty believe that

learners are more open to HyFlex than faculty themselves. Faculty responses suggest a gap between their own preference to teach in HyFlex formats and their perception of learner demand. Faculty may feel that learners are driving the push for HyFlex, while faculty themselves remain unconvinced of its benefits or feasibility. This could be due to concerns about instructional quality, workload, technology, or institutional support.

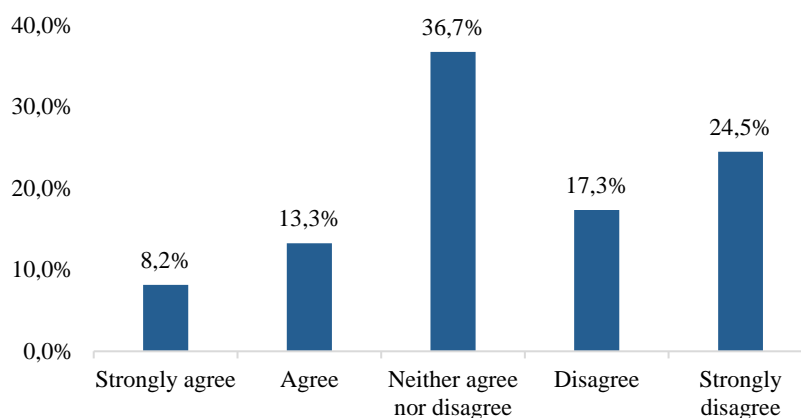


Figure 1. Responses to the statement, “I prefer teaching in a multi-access (HyFlex) format”. Percentages on the Y-axis represent the proportion of respondents selecting each category.

Table 1. Faculty Response: Own Preference vs Perceived Learner Preference for HyFlex Delivery

Faculty response to "To what extent do you believe students prefer having the option to learn in a multi-access (HyFlex) format?"	Faculty response to "I prefer teaching in a multi-access (HyFlex format)."		
	Strongly agree or Agree	Neither agree nor disagree	Strongly disagree or Disagree
Strongly or Somewhat prefer (52.1%)	16.7%	14.6%	20.8%
Neutral (33.3%)	3.1%	19.8%	10.4%
Somewhat or Strongly do not prefer (14.6%)	0.0%	3.1%	11.5%

To explore faculty perceptions of the challenges in implementing HyFlex delivery, participants were asked to rank 14 issues from most to least challenging (Figure 2). Each issue was rated on a scale from 1 (most challenging) to 14 (least challenging). As shown in Figure 2, academic integrity emerged as the top concern (median rank = 2), followed closely by effective assessment practices for online teaching (median rank = 3.5). These findings suggest that maintaining fairness and designing robust assessments are critical priorities in virtual learning environments. Faculty's concern regarding access to technologies and workforce readiness is very low, as these are ranked among the least challenging issues. The low ranking of workforce readiness is particularly noteworthy given the institute's background as a polytechnic institution. Although the scope of the research did not include further analysis of this issue, faculty might have considered exposure to online learning more conducive to adaptation in job as the industry is rapidly adopting new technologies such as Artificial Intelligence and automation. Student access to technologies (median ranking = 11) and faculty access to technologies (median ranking = 12) also appear as least challenging issues to faculty. Overall, faculty view pedagogical concerns like academic integrity and assessment as more important than technology or infrastructure challenges in the HyFlex format.



Figure 2. Rankings of challenges in HyFlex format (Median values. 1 = Most Challenging, 12 = Least Challenging)

The perceived challenges of faculty with and without HyFlex teaching experience were compared using Mann-Whitney U tests (with a significance level set at 0.05). The findings showed that compared to non-experienced faculty, experienced faculty considered faculty fatigue and burnout to be a significantly bigger challenge ($p = .040$). Additionally, there were marginal group differences for workforce preparedness ($p = .064$) and academic integrity ($p = .081$), with less experienced faculty members tending to rank these issues as more important. All remaining challenges, including effective assessment and instructional practices, course quality, digital literacy, and accommodating diverse needs, yielded p -values greater than 0.1, indicating no statistically significant differences between the groups. Since only one challenge (i.e., faculty fatigue and burnout) demonstrated a statistically significant group difference, the results of this comparative analysis were not considered further.

Ranking of challenges

Table 2 presents the challenges categorized by faculty members' level of agreement with teaching in the HyFlex format. Across all three faculty groups, academic integrity emerges as the most pressing challenge in HyFlex teaching. This outcome underscores a shared concern among the faculty members that HyFlex format compromises on academic integrity. Faculty who agree or strongly agree with teaching in HyFlex tend to prioritize assessment-related and pedagogical challenges, such as effective online assessment and accommodating diverse learning needs. This emphasis reflects prioritization of instructional quality. Faculty who neither agreed or disagreed about their preference to teaching in HyFlex format or who left the response blank show a similar pattern but place greater weight on challenges such as fatigue and digital literacy. In contrast, faculty who disagree or strongly disagree also highlight assessment and diversity concerns but rank faculty workload, digital literacy,

and access to technology more prominently. Across all groups, workforce readiness and in-person course quality are consistently ranked as lower-level concerns. Overall, the rankings suggest that while core challenges are widely shared, instructors' preferences toward HyFlex are associated with subtle shifts in emphasis between pedagogical quality and resource- or capacity-related concerns.

Table 2. Ranked challenges to the statement "I prefer teaching in a multi-access (HyFlex format)."

Rank	Strongly Agree or Agree	Neither agree nor disagree	Disagree and Strongly Disagree
1	Academic integrity	Academic integrity	Academic integrity
2	Effective assessment practices (teaching online)	Accommodating diverse learning needs	Effective assessment practices (teaching online)
3	Accommodating diverse learning needs	Effective assessment practices (teaching online)	Accommodating diverse learning needs
4	Effective instructional practices (teaching with technology)	Faculty fatigue and burnout	Faculty fatigue and burnout
5	Course quality (online or hybrid)	Faculty digital literacy	Faculty digital literacy
6	Faculty fatigue and burnout	Effective instructional practices (teaching with technology)	Effective instructional practices (teaching with technology)
7	Faculty digital literacy	Course quality (online or hybrid)	Course quality (online or hybrid)
8	Post-secondary readiness	Post-secondary readiness	Student digital literacy
9	Student fatigue and burnout	Student fatigue and burnout	Post-secondary readiness
10	Student digital literacy	Student digital literacy	Faculty access to technologies
11	Student access to technologies	Student access to technologies	Student fatigue and burnout
12	Course quality (in-person)	Course quality (in-person)	Student access to technologies
13	Workforce readiness	Workforce readiness	Workforce readiness
14	Faculty access to technologies	Faculty access to technologies	Course quality (in-person)

Thematic analysis of open-ended questions

In addition to the ranked choices, open-ended responses were collected, which were centered around two main themes. The first theme focused on factors influencing students' preference for course delivery methods (Drivers), while the second aimed to identify additional pressing challenges (Challenges) beyond the 14 listed in Figure 2. After screening, there were 74 valid Driver responses and 45 valid Challenge responses. Responses were grouped by familiarity with HyFlex, ensuring analysis included perspectives both from those familiar and unfamiliar with HyFlex. A two-phase qualitative analysis was conducted to ensure both interpretive depth and methodological rigor. In Phase 1, a manual exploratory inductive thematic analysis was used to identify micro-themes directly from open-ended survey responses, following a structured row-by-row coding procedure. This phase prioritized researchers' subjective judgement to categorize the responses into broad thematic areas. In this phase, the researchers initially categorized the responses into sub-categories before aggregating them into broad thematic categories. In Phase 2, OpenAI's ChatGPT (2026) was employed as a Natural Language Processing (NLP) tool to conduct qualitative content analysis in extracting thematic

areas from open-ended responses. Broad thematic areas and response rates were identified using explicit inclusion rules, category definitions, and frequency thresholds. While automated text analysis shows promise, researchers (e.g., Grimer & Stewart, 2013; Chubb, 2023) caution about its limitations. Studies like Guetterman et al. (2018) indicate NLP can capture main themes but often misses subtleties found in manual analysis. This paper discusses the broad outcomes of the two analytical approaches in the following two sections, although a detailed comparison of manual versus automated methods is outside the scope of this work.

Drivers of student preferences for HyFlex delivery

Table 3 presents the categorization of responses to the open-ended questions collected under the Driver theme. The researchers' subjective analysis found that work and financial pressures to be the main factors (15.45%) influencing students' delivery mode preference, while the NLP tool highlighted flexibility and scheduling constraints (64%) as the most significant driver. NLP prioritizes surface-level semantic patterns and frequency, which amplifies repeatedly mentioned terms like "flexibility." Additionally, the manual analysis produced evenly distributed broad themes, such as student circumstances, technology readiness, and learning preferences. In contrast, the NLP tool grouped responses by learning effectiveness, modality preference, commuting, and social connection, with a wider percentage range. The disparity is most likely due to manual analysis emphasizing contextual understanding and experiential interpretation, whereas NLP prioritizes frequency of lexical patterns and semantic similarity.

Table 3. Drivers of Student Needs and Preferences for Course Delivery Modes (Number of valid responses: 74)

<i>Manual analysis by separating from sub-categories to categories (10% and above are listed)</i>	
Category (sub-category) from manual analysis	Response (%)
Work and financial pressures (Work/employment; Cost/affordability)	15.45%
Student circumstances and behaviors (Family/childcare; Health/illness; COVID habits; Motivation/effort; Time-management; Academic integrity/cheating)	12.73%
Technology and infrastructure readiness (Technology access/fluency; Campus infrastructure / HyFlex readiness)	11.36%
Learning preferences and perceived effectiveness (Learning style/preference; In-person preference; Course suitability/topic dependent)	10.91%
Support and connection (Instructor contact/face time; Support/resources; Peer interaction/social/networking)	10.91%
Flexibility and scheduling (Flexibility/scheduling; Delivery format (synchronous/asynchronous))	10.45%
<i>Analysis using ChatGPT 5.2 (OpenAI, 2026) (Inclusion rule: Category must appear in $\geq 10\%$ of responses (≥ 8 mentions))</i>	
Category	Response (%)
Flexibility and scheduling constraints	64.0%
Learning effectiveness and modality preference	50.7%
Commuting, transportation, and location	21.3%
Social connection and engagement	14.7%
Course / skill suitability	14.7%

Challenges in HyFlex Delivery

The outcomes of both the manual categorization and the NLP tool are shown in Table 4. The manual review of the text responses showed that the major challenges the respondents considered for the HyFlex delivery are technology, infrastructure and support equipment. This contrasts sharply with how faculty ranked challenges to HyFlex delivery (Figure 2), where students' access to technology was placed 11th out of 14 challenges. Additional challenges included pedagogy (21.37%), course fit, applied learning, and learning outcomes (12.98%), as well as faculty readiness, workload, and professional development (10.69%). In comparison, the NLP analysis emphasized HyFlex delivery complexity and workload as the dominant challenge (37.8%), with student engagement and motivation (26.7%) and technology, infrastructure, and classroom setup (20.0%) also emerging as prominent concerns. Unlike the wide difference in range observed between manual and automated text analyses in the Drivers theme, the spread is not sharply different between the two approaches for the Challenges theme. One of the reasons for this can be due to the low number of responses in the Challenges theme as only 45 valid responses were used in the analysis.

Table 4. Challenges of HyFlex Delivery (Number of valid responses: 45)

Manual analysis by separating from sub-categories to categories (10% and above are listed)

Category (sub-categories)	Response (%)
Technology, infrastructure and support (Technology / LMS / equipment)	25.95%
Pedagogy and delivery-model complexity (Pedagogy / delivery complexity (HyFlex facilitation, multi-modal delivery challenges)	21.37%
Course fit, applied learning and outcomes (Course suitability / hands-on constraints; Quality concerns / outcomes / industry acceptance; Language barriers)	12.98%
Faculty readiness, workload and development (Workload / time / capacity; Training / skills development)	10.69%

Analysis using ChatGPT 5.2 (OpenAI, 2026) (Inclusion rule: Category must appear in $\geq 10\%$ of responses i.e., ≥ 5 mentions)

Category	Response (%)
HyFlex delivery complexity and workload	37.8%
Student engagement and motivation	26.7%
Technology, infrastructure, and classroom setup	20.0%
Rapport, communication, and student support	13.3%
Compensation, staffing, and institutional support	11.1%

Discussion and conclusion

The present study provides insights into faculty perceptions of HyFlex delivery within the context of post-secondary education at a polytechnic institute, reinforcing and extending existing research in several ways. The findings reveal a pronounced preference among faculty for face-to-face teaching, with only 21% expressing a positive view of HyFlex formats. This supports Beatty's (2019) observation that, despite the flexibility offered by HyFlex, faculty often remain unconvinced of its pedagogical benefits. Similarly, Kohnke and Moorhouse (2021) reported that instructors perceive HyFlex as less effective for fostering communication and engagement compared to traditional modes.

The paper identifies a clear gap between faculty perceptions of learners' enthusiasm for HyFlex delivery and their own preferences for teaching in this mode. The results show that while faculty members are concerned about HyFlex delivery, over half believe that students strongly prefer such flexible learning options. This aligns with Angelone et al. (2020), who found that student demand is a

key driver for the adoption of hybrid formats, even when faculty are hesitant. The results highlight that faculty perceive academic integrity and assessment effectiveness as the most pressing challenges in HyFlex delivery, echoing Bernard et al. (2004), who emphasised the importance of robust assessment practices in online environments. Interestingly, concerns about access to technology and workforce readiness were ranked lowest by faculty, diverging from Martin et al. (2020), who noted that technological barriers often impede the adoption of online and hybrid learning. This discrepancy may be attributed to the nature of institute from which faculty participated in the survey, where both staff and students are well-equipped and digitally literate. In thematic analysis of qualitative responses, the faculty cited flexibility, accessibility, and the ability to balance work and study as key factors driving student interest in HyFlex formats. They expressed concerns about student engagement, academic integrity, and consistent instructional quality in different formats. Supporting Torio et al. (2023), the study notes issues with motivation and interaction in multi-access settings, as well as faculty fatigue and burnout particularly among those less supportive of HyFlex highlighting the need for institutional support and better workload management.

This study reveals a significant gap between faculty preferences for HyFlex teaching and their perceptions of student demand. While flexibility and accessibility are recognized as key drivers for student interest, faculty express concerns about engagement, instructional quality, and workload. Despite its promise, HyFlex delivery poses complex pedagogical and logistical challenges that warrant careful consideration before widespread adoption. To support effective implementation, institutions should consider targeted policy adjustments, strategic resource allocation, and innovative approaches such as authentic assessment to address concerns related to academic integrity. Establishing a clear institutional framework for HyFlex delivery including investments in classroom technology and comprehensive professional development will be essential. Faculty development initiatives should emphasize strategies for fostering engagement, maintaining instructional quality, and managing workload within multi-access learning environments. The study is limited by the scope of the survey and the relatively low level of HyFlex adoption at the institution. Future research should examine the longitudinal effects of HyFlex delivery on learning outcomes, faculty workload, and institutional practices across multiple semesters or years. Such research could provide deeper insights into how HyFlex influences student and faculty experiences and academic performance over time. The successful adoption of HyFlex delivery requires a deliberate, evidence-based approach that balances instructional flexibility with pedagogical integrity, ensuring meaningful and well-supported learning experiences for both faculty and students.

Acknowledgment

The authors acknowledge institutional support from SAIT for this research and would recognize the Canadian Digital Learning Research Association (CDLRA) for providing access to the 2023 Pan-Canadian Report on Digital Learning Trends, which informed the survey design. We would also like to thank Dr Christian Wokem for his insightful contributions to this research at the earlier stage of the project. The authors also acknowledge the use of ChatGPT (OpenAI, 2026) for the textual analysis and for the grammar check in the final stage of the paper.

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