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Multimodal Learning Analytics in HyFlex Configurations: A Framework for The Comparative Assessment of Students' Engagement

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Abstract

The application of the Equivalency core principle represents a usual challenge to deal with in the implementation of HyFlex configurations, especially between the face-to-face and remote synchronous modalities to be simultaneously delivered. Ensuring an equivalent engagement of students participating remotely in the group discussions compared to the face-to-face ones is a typical example of this challenge. For that purpose, the application of metrics, and more globally of MultiModal Learning Analytics, can lead to a data-informed approach to student success in HyFlex implementations, especially from the A/V setup standpoint. This paper presents such an initiative, through a research project started in 2023 in Japan in a university laboratory focusing on Learning Analytics. It introduces the framework, based on combined face detection and utterance analysis with different setups (especially in terms of A/V), intending to identify the best one to foster equivalence in engagement for both of face-to-face and remote students. It also presents the first results obtained, and the perspectives already envisioned for the continuation of this research.

Keywords

Multimodal Learning Analytics; Engagement; Equivalency; A/V Setup; Face Direction; Utterance; Group Discussion

Introduction

The equivalency core principle of HyFlex supposes an equivalent learning experience between the three modalities. Among them, ensuring engagement from both the face-to-face students and the synchronous remote ones usually represents a challenge. For the synchronous remote students, the lack of social presence can especially be a source of limitation for their active participation. This social presence includes non-verbal information such as eye contact, which can be quantified through the facial direction of the participants. On its side, the quantification of the amount of speech, or utterance, can represent a marker of student engagement in collaborative activities.

To clarify the relationship between non-verbal information and utterance comparatively for face-to-face and synchronous remote students in HyFlex group discussions, we developed a

Multimodal Learning Analytics framework that intends to answer the two following research questions (hereafter referred to RQ):

RQ1: Is there a relationship between the face direction and the amount of speech during HyFlex group discussion? To verify this, we combined face orientation and speech data from the group discussion

RQ2: Does the activation/deactivation of the webcam impact the amount of speech in the HyFlex group discussion? To verify that, we compared and analyzed the amount of speech with the webcam ON and OFF

This paper is organized in three main parts: 1/ Our Methodology, which presents the organization of the experiments, the metrics chosen for our Multimodal Learning Analytics experimental framework and our data acquisition systems, and the A/V setups we tested; 2/ The results collected from a first round of experiments, and the conclusions we could get from them, especially in terms of most suitable A/V setup to ensure equivalency; and 3/ The perspectives and future work we envision for this research.

Methodology

Organization of experiments

The first experiments, led four times in October 2023, involved 13 students organized in groups of four, two of them seated at the same table in a face-to-face situation, and the two others in a synchronous remote one (which was simulated by individually seat them in another room). For this first round, the allocation of subjects in the face-to-face sub-group or in the simulated synchronous remote one was decided by the organizers. We mixed subjects who knew each other before, and people who didn't. Some subjects belonged to two experimental groups.

Each experiment consisted of a 10-minute group discussion on a topic chosen to be equal in terms of knowledge between all subjects.

Metrics and data acquisition

For the face-to-face and synchronous remote subjects, two types of data were recorded and analyzed: the face orientation, and the volume of the voice.

The face orientation was recorded through the iPad Mini's camera and the recording feature of the Zoom videoconferencing system used during the experiments. A calibration was conducted before the proper beginning of the experiment especially to set the relative position of each subject. These video data were analyzed by OpenFace (a face posture detection software) and translated to values for the right/left orientation of the face.

The volume of the voice was recorded through a microphone array system and the recording feature of the Zoom videoconferencing system. These audio data were analyzed by Hylable system to quantify the amount of speech.

For each experiment, the analyzed data were combined on the same time period.

A/V Setups

Two A/V setups were tested for each group of subjects. The purpose was to simulate different equipment's of a HyFlex-compatible Learning Space in order to identify which one would be the most suitable for an equivalent student engagement in the group discussions.

The Call Center setup was based on all subjects - face-to-face and remote ones - using their own laptop to connect to the Zoom videoconferencing.

The Public Viewing setup was based on remote subjects connecting to the Zoom videoconferencing with their own laptop, and face-to-face ones with a unique and larger screen put on the table they were sharing.

Each of these two A/V setups was tested with the webcam ON and OFF, thereby settling four experimental conditions.

The combined data that were collected were converted to a diagram for each group and each experimental condition. These diagrams, compared to each other, were used to analyze the results and draw comments and conclusions.

As explained in Figure 4, these diagrams show the amount of speech recorded for each of the four subjects of the group through the variable size of circles. They also show the direction in which they turned their faces through arrows (red for the face direction towards the screens, and purple for the face direction to another face-to-face subject), and the amount of time they turned their faces in that direction (numbers figured next to each arrow).

Results

We applied the visual scheme described in 3.1 to each group and to each experimental condition, and thereby we obtained a matrix allowing us to compare the results to each other.

From this set of results, we could draw the first conclusions regarding our two research questions, presented hereafter.

Discussion on RQ1: Relationship between face direction and amount of speech

Among the four experimental conditions, #1 (Call Center with webcam ON) is the one showing the most homogeneous size of circles, and globally the thickest red arrows. The p-value of the t-test for this experimental condition is the largest one (p=0,8779), letting us

envision that this is the condition showing the highest probability of an equivalent engagement in the discussion between the face-to-face and the remote students. Returning to our RQ1, it appeared that in the Call Center setup, a relationship might exist between the face direction and the amount of speech. This relationship couldn't be verified in the Public Viewing setup.

Discussion on RQ2: Effect of the webcam activation/deactivation on the amount of speech

Regarding our RQ2, it appeared that if the activation of the webcam is globally optimal for the amount of speech, it is not necessary to ensure an equivalent engagement from all participants (Figure 6). The Call Center setup seems to allow the participants to have the most equal amount of speech, regardless of their face-to-face or remote attendance.

More globally, the A/V setup to be implemented (Call Center or Public Viewing) seems to have more impact on the amount of speech than having the webcam ON or OFF.

Perspectives and future work

This first phase of our research allowed us to get results that we think are tangible enough to be used for instance in the design of HyFlex compliant Learning Spaces/Environments, by highlighting the A/V setup ensuring the highest equivalency in the engagement of students in terms of amount of speech. However, we identified two main limitations to be addressed in future work.

First, our first round of experiments has been conducted only with Japanese students. Cultural dimensions may influence the nature and the reasons for engagement compared to Western students for instance. Having a more intercultural approach by applying the same framework to a wider and more diverse group of subjects would allow to verify this hypothesis.

Secondly, in its current state, our framework is considering the utterance only from a quantitative standpoint. We are considering adding a qualitative approach, by conducting a content analysis of the exchanges (especially using keywords) led during the group discussions.

Furthermore, and beyond the involvement of international subjects, the next round of experiments would get benefit from being conducted with larger groups of participants, and giving them the choice of the modality they want to use.

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What Would ChatGPT Do? Training Students to Learn with AI Without Cheating

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Abstract

When students use ChatGPT, are they cheating or learning? This comprehensive guide explores how HyFlex educators can transform AI from a threat to academic integrity into a powerful learning partner. Moving beyond binary "use it or don't" messaging, this guide provides practical strategies for teaching students to collaborate with generative AI tools ethically, creatively, and reflectively. Through transparency logs, peer review integration, and metacognitive activities, students learn to think critically WITH AI rather than outsourcing thinking TO AI. The guide includes ready-to-implement activities, assessment rubrics, formative evaluation strategies, and addresses common concerns about skill atrophy and equity. Perfect for educators seeking to prepare learners for an AI integrated future while maintaining academic integrity and fostering genuine learning.

Introduction

When students use ChatGPT, are they cheating or learning? The answer depends on how we teach them to use it. In HyFlex learning environments, where instructional design already embraces flexibility, the integration of AI offers both a unique challenge and a unique opportunity. This paper focuses on Part 2 of a two-part exploration of AI in HyFlex classrooms, with a focus on how we can train students to collaborate with generative AI tools ethically, creatively, and reflectively.

This isn't just about preventing plagiarism. It's about preparing learners to think critically with AI, not outsource thinking to AI.

When we model smart, transparent use of AI, we teach students how to use it as a tool for dialogue, ideation, and inquiry, not deception. We teach students to learn with AI (as a thinking partner that they engage with critically), not from AI (like a textbook).

This means designing opportunities for metacognitive reflection, where students:

- actively assess how they’re using AI
- what they’re learning from it
- learn how it supports or hinders their understanding

Background

The ethics of AI in education represents a growing area of scholarly and practical concern. One of the greatest challenges facing educators today is not the misuse of AI itself, but rather our collective underdevelopment of ethical use frameworks. Students consistently receive binary messaging: "Use it and you're cheating. Don't use it and you're fine." However, this black-and-white approach fails to match students lived reality, where AI is increasingly embedded into the digital tools and platforms, they use daily. Contemporary thinking around digital literacy emphasizes that students need participatory media skills. They must not only consume information critically but also understand how digital tools like AI actually produce that information. This shift from passive consumption to active interrogation represents fundamental aspect of modern digital literacy.

In HyFlex learning environments, this challenge becomes pedagogically rich with opportunity. We can design both synchronous and asynchronous activities that support student agency while providing structured opportunities for ethical AI experimentation and reflection.

This approach builds on established concepts of critical digital literacy while adding the crucial dimension of metacognition (helping students develop awareness of how they think with AI) and why these processes matter for their learning and development.

As AI tools become more sophisticated and accessible, the question is no longer whether students will use them, but how we can teach them to use these tools as thinking partners rather than shortcuts to academic completion.

Scenario

Students are explicitly encouraged to use ChatGPT and similar tools. If they use the tools, they have to document how they used it. These artifacts are not assessed not for accuracy alone but also for evidence of critical engagement and ethical awareness. You decide how to weight the assessments based on the learning outcome priorities.

This Shift from Passive Consumption to Active Interrogation is Central to Digital Literacy

Students are expected to show increased confidence using AI when they understand its role is to support, not replace, their thinking. If conducted correctly, students should realize that ChatGPT doesn’t have to provide answers, or only answers. It can, offer questions students don’t think to ask.

Students should be less likely to copy AI output verbatim when they are taught to challenge it. Activities that position AI as a case study subject, e.g., “Is this advice sound?” should be particularly effective. For example, one activity might be to have students design a lesson where ChatGPT plays the role of a nutritionist and interact with ChatGPT to debunk or verify its claims using academic sources.

General Benefits of Ethical AI Training

It moves learners away from using AI to replace effort. It enhances thinking versus replaces it (passive learning, if learning at all). Learners become more self-aware about when to trust the AI, when to question it, and how to improve their own cognitive processes. Classroom tone shifts from "don't get caught" to "let's do this right." when logs are used to document AI use. Ethical AI training goes beyond teaching students how to use AI; it prepares them to engage with it thoughtfully and professionally.

First, it reinforces critical thinking with technology, instead of replacing student effort. We're not aiming to eliminate thinking; we're aiming to enhance it with the support of AI tools. Students become collaborators with AI, not passive recipients. Second, it develops metacognitive skills. By evaluating AI outputs and comparing them to their own reasoning, students learn how they think. They become more self-aware about when to trust the AI, when to question it, and how to improve their own cognitive processes. Finally, ethical training promotes academic integrity. When students are required to document their AI use, through transparency logs or other reflective activities, it reduces the temptation or ability to deceive. It shifts the tone from "don't get caught" to "let's do this right." These practices also create accountability systems that mirror the professional world, where documenting your process and using tools responsibly is expected.

AI Log and Reports

By modeling this process and giving students permission to share missteps and doubts, we create learning cultures that embraced transparency over perfection.

Practical Strategies for Ethical AI Use in HyFlex Learning

Rehearse, Don't Replace: Encourage students to use AI to practice discussion points or brainstorm perspectives, especially before live sessions. They can ask AI to roleplay dissenting views or simulate expert interviews. AI as a Character or Confidant: Assign tasks where students "interview" AI as a historical figure, professional, or even fictional character. Then, have them cross-reference the answers. Collaborative Fact-Finding Games: In breakout rooms or asynchronous discussion boards, present ChatGPT-generated "facts" and challenge students to confirm or disprove them using reliable sources. Create AI Logs: Ask students to submit a 2–3 paragraph reflection or screenshot log that explains how they used AI, what it helped with, and where it fell short. This promotes transparency and metacognition. Normalize Productive Failure: Let students share AI mistakes or odd results in class. Make those failures teachable moments. What went wrong in the prompt? What assumptions did the tool make?

Transparency Logs Are a Reflective Practice

- Where students document how they used AI during their assignment
- What prompts they tried
- How they revised AI output
- What they rejected entirely

- Encourages critical thinking and ethical awareness

Multi-format submissions give students flexibility to express themselves in ways that suit their learning preferences or modality:

- A written log might look like a journal or step-by-step AI interaction summary.
- A voice memo allows for informal reflection on-the-go.
- A video explanation could show screenshares or storytelling of their process.

Peer review integration transforms logs from private to shared learning tools:

▪ Students exchange logs in small cross-modal groups, giving feedback on how AI was used and how it impacted the final work.

▪ This encourages meta-awareness—not just of one's own process, but of how others engage with AI differently.

5. Scaffolded Development Means Logs Evolve Across the Term:

Early on, students may just track prompts and outcomes ("I asked AI for help writing a scene"). Later, they reflect more deeply on decision-making, voice preservation, ethical concerns, and how AI changed their learning ("I rejected this AI suggestion because it flattened my character's emotion…").

Logs help demystify AI use in academic and creative work, normalize trial-and-error, and support responsible innovation.

EXAMPLE AI LOG TEMPLATE

AI Interaction Log - [Assignment Name]

What I Asked AI: [Specific prompts used]
What AI Provided: [Summary of responses]
How I Verified/Extended: [Sources consulted, critical thinking applied]
What I Learned: [About the topic AND about using AI]
What I'd Do Differently: [Reflection for improvement]

Asking ChatGPT for Clarification

Q: During my research, I asked ChatGPT what would stop someone from using AI to write a reflection?

A: GPT Response: "Practically speaking, not much. If the reflection is purely text-based and doesn't require personal or experiential depth, it's very easy to offload it to AI. That's why designing for authenticity is crucial." ChatGPT offered example of an authentic assessment for required reflections (see Appendix A).

Q: I then asked why students' reflections must be unscripted responses.

A: GPT Response: “Great question—framing this before students begin is key. Many students’ default to scripting because they want to “get it right,” especially in academic contexts. But for a reflection, scripting can dilute authenticity and interfere with genuine insight. An explanation regarding how you might explain the importance of unscripted reflection in the assignment prompt, syllabus, or verbal instructions as offered by ChatGPT is in Appendix B.

Q: I then asked ChatGPT to help create a gamified assignment to help students learn to use AI ethically. I asked for an activity that included the most common education-based requests it received.

A: GPT Response: Students frequently use AI to brainstorm topics, write drafts, reword sentences, or check grammar. That makes it a perfect space to teach ethical, collaborative use—especially through a game. Appendix C is the activity ChatGPT created.

Peer Review Integration adds another layer of insight, empowering students to evaluate each other's AI use in small groups. Not only does this reduce grading load, but it builds trust and shared learning. In HyFlex environments, peer review also fosters cross-modal connections—bridging in-person and online learners through shared analysis and discussion.

Finally, Exit Ticket Reflections are a simple “How did AI help or hinder your learning today?” and provide a low barrier, high-yield way to track evolving student experiences. These quick reflections offer real-time data to inform next steps, allowing instructors to adapt upcoming lessons or address tool-based confusion before it calcifies.

Together, these practices help instructors remain responsive while cultivating a classroom culture where AI is a tool for thinking, not a shortcut for output.

Weekly AI Log Quick-Checks

Have students submit short AI use logs, 2–3 paragraph reflections or screenshots—on a weekly basis. Skim these for:

• Red flags such as total AI dependence or copy-paste behavior

• Exemplars that demonstrate thoughtful AI interaction you can share anonymously

• Misconceptions or confusion points that signal the need for reteaching or clarification

These logs promote transparency, metacognition, and better habits over time.

2. Peer Review Integration

Students can evaluate each other’s AI logs or usage practices in pairs or small groups. This:

• Builds community around responsible use

• Lightens grading load while still promoting accountability

• Encourages cross-modal connections in HyFlex classes, where online and in-person students can compare strategies and outcomes

Instructors can invite each group to share one takeaway or tip with the class to reinforce shared learning.

3. Exit Ticket Reflections

Close sessions with a brief reflection prompt such as:

“How did AI help or hinder your learning today?”

This provides a real-time pulse check on student experience and informs your instructional adjustments for the next class. Patterns in these reflections can also help shape future mini-lessons on effective prompting or critical evaluation of AI responses.

Summative Strategies Help Students Move Toward Using AI to Understand and Own Their Learning Journey

When assessing student growth in AI-enhanced classrooms, summative approaches should do more than capture final outputs. They should reveal the process behind the work. These two strategies, the Portfolio Approach and Live Demonstrations offer meaningful ways to evaluate student learning while reinforcing critical engagement with AI tools.

Portfolio Approach: Capturing Growth Over Time

Encouraging students to compile and curate their AI use across the term supports reflection and ownership. A portfolio of AI logs, drafts, and revisions allows students to:

Showcase progress in how they use AI as a thinking partner
Select and annotate their strongest examples to highlight growth in skill, strategy, or confidence
Reveal learning processes, such as refining prompts, evaluating outputs, or troubleshooting errors—not just polished results

This approach aligns with student-centered learning and can serve as a powerful tool for self-assessment and final grading.

Live Demonstration Requirements: Thinking in Real Time

To ensure students can articulate and apply their learning independently of AI tools, consider incorporating a live demonstration element into final assessments. In synchronous settings (in-person or online), students explain:

How they used AI in developing their project
What they learned from the interaction

How they made decisions based on AI-generated input

Because these demonstrations happen in real time, they validate authorship, encourage metacognition, and build confidence. They're also adaptable across HyFlex modalities, making them an equitable, scalable tool for assessment.

Conclusion

Teaching students to use AI without cheating is about modeling, not monitoring. In HyFlex learning spaces, we can meet students where they are: digitally fluent but ethically uncertain. With clear expectations, creative assignments, and space for reflection, we help them see AI as a thought partner, not a shortcut. This reframing shifts the conversation from plagiarism to participation and gives students the tools to become ethical collaborators in an AI shaped future.

Pedagogy of Care as a Framework for HyFlex Teaching and Learning

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Abstract

Institutional priorities around course modalities and instructional practices are rapidly evolving in the post-COVID era. This shift is driven in part by a 10%–20% decline in student enrollment across many campuses (NCSS, 2022) and occurs alongside a growing demand from students for more flexible and personalized learning experiences (Pelletier et al., 2023). In response, institutions are exploring new approaches to meet both enrollment and student interest demands. According to CHLOE 8 (Garrett et. Al., 2023), 13% of Chief Online Officers identified the expansion of HyFlex capacity on their campuses as a top institutional priority. However, effectively managing multiple modalities remains one of the most persistent challenges for instructors. We will present practices we used to support and enhance a shared sense of community that were implemented across multiple HyFlex courses at one University.

Introduction

Institutional priorities around course modalities and instructional practices are rapidly evolving in the post-COVID era. This shift is driven in part by a 10%–20% decline in student enrollment across many campuses (NCSS, 2022) and occurs alongside a growing demand from students for more flexible and personalized learning experiences (Pelletier et al., 2023). In response, institutions are exploring new approaches to meet both enrollment and student interest demands. According to CHLOE 8 (2023), 13% of Chief Online Officers identified the expansion of HyFlex capacity on their campuses as a top institutional priority. However, effectively managing multiple modalities remains one of the most persistent challenges for instructors. As Olson and Wittkopp (2024) explain:

From conversations with instructors and based on personal experience, teaching two audiences simultaneously is challenging, especially without sufficient technology. It requires greater cognitive bandwidth to manage two audiences at once, plus the ability to engage with them or facilitate engagement between them (p.1)

This challenge is repeatedly cited as a barrier to adopting HyFlex teaching practices and requires further exploration (Boehm & Boerboom, 2023; Naffi, 2020; O'Ceallaigh et al., 2023; Shields, 2023). This is a critical endeavor as recent research suggests that HyFlex courses that intentionally consider teaching, cognitive, and social presence—and place emphasis on social presence—are more likely to create meaningful and engaging experiences for both instructors and students (Buckley et al., 2024; Eduljee et al., 2024).

The Community of Inquiry (COI) framework (Garrison et al., 2001) is a well-established model that defines three key dimensions for teaching in online environments: cognitive presence, teaching presence, and social presence. Social presence refers to the ability of

students to engage meaningfully in communication within a trusted learning environment, where they can express their thoughts and feelings and build relationships with both their peers and instructors (Garrison, 2009). Kreijns et al. (2022) further clarify that social presence involves the extent to which interpersonal relationships are cultivated between students and instructors, and these opportunities create a space of mutual trust and support that increases positive learning outcomes.

Social presence, as described by Garrison et al. (2009) and Kreijns et al. (2022), complements social pedagogies of care (Noddings, 1995). Social pedagogies of care, or ethics of care, are increasingly recognized as essential elements of critical digital pedagogy in online teaching. Critical digital pedagogy emphasizes the design and enactment of online teaching and how instructors build course infrastructures (i.e., technological and pedagogical design maps) that sustain acts of care by both the instructor and students (Köseoğlu et al., 2023). The social construct of care is a complex and relational experience, one that evolves through iterative moments of trust and mutual understanding. These experiences are "shaped by, and shaped within, particular spaces and places" (Milligan & Wiles, 2010, p. 736), making HyFlex a unique learning space to explore.

Research on pedagogies of care primarily focuses on the relationship between instructors and students, emphasizing the ways in which authentic caring roles are projected and experienced in learning environments (Rolón-Dow, 2005). Ethics of care research also unpacks the sociocultural dimensions of care, examining how care is enacted and experienced differently based on cultural context (Gay, 2009). More specifically for this presentation, social pedagogies of care research have also focused on how students' funds of knowledge and community cultural wealth are acknowledged and valued in learning spaces. In earlier framings of care, Noddings (1995) explains, acts of care involve genuine demonstrations of concern and interest in another person. It also refers to fostering relationships from a place of mutual understanding and respect. These moments affirm that each learner is a valued member of the community. However, creating these moments can be challenging, especially in multimodal learning environments, where students may not be physically present to make direct emotional connections without explicit instructor facilitation.

The connection between the pedagogy of care and HyFlex teaching and learning represents an emerging area of inquiry. Understanding how instructors demonstrate care toward multimodal learners, and how they intentionally design learning environments that foster belonging and acceptance is essential to exploring the development of hybrid spaces—what Zeichner (2010) describes as collaborative co-constructed spaces where a shared sense of belonging, and community are established. Of the relevant literature in the field, Curnalia (2023) mentions that students' emotional responses to course modalities—particularly during rapid transitions from in-person to online learning—shape their overall learning experiences. The importance of acknowledging student emotions, such as disconnection, and how instructors respond to these emotions can profoundly impact students' sense of belonging and engagement in HyFlex environments.

According to Beatty (2024), many institutions are now moving into a “slope of enlightenment’ (Beatty, 2024, p.1) a phase marked by intentional refinement of HyFlex pedagogy and technology, in contrast to the rapid, reactive adoption that occurred during the early stages of the COVID-19 pandemic. This current period is one of strategic planning and sustained implementation, during which the importance of social presence across modalities is becoming increasingly clear as a key factor in the long-term success of HyFlex learning. This is an important moment in the HyFlex professional community to explore and expand our understanding of social presence.

This presentation will begin with an overview of recent research in HyFlex teaching, emphasizing research that focuses on teaching and social presence in HyFlex learning spaces. The presenters will make an explicit empirical connection to pedagogies of care and ethics of care research and how this translates to HyFlex learning spaces. Most of the presentation will focus on Hybrid-HyFlex instructional strategies that are grounded in pedagogies of care research. Participants will learn about how two instructors designed their HyFlex course to focus on building a sense of community and establishing mutual respect and trust across modalities. Examples will be visually described and applied to small and large group HyFlex settings. HyFlex courses that promote collaborative engagement can significantly enhance students’ sense of belonging, leading to meaningful and connected experiences for students and instructors. This presentation will explore key practices for cultivating a sense of community, emphasizing strategies that foster connection, inclusivity, and engagement.

This presentation focuses on exploring and understanding enhanced pedagogical strategies for HyFlex learning spaces. According to Beatty (2024), many institutions are now moving into a “slope of enlightenment” (Beatty, 2024, p.1) —a phase marked by intentional refinement of HyFlex pedagogy and technology, in contrast to the rapid, reactive adoption that occurred during the early stages of the COVID-19 pandemic. This current period is one of strategic planning and sustained implementation, during which the importance of social presence across modalities is becoming increasingly clear as a key factor in the long-term success of HyFlex learning. This is an important moment for the HyFlex professional community to expand understanding of social presence. This presentation focuses on expanding HyFlex research beyond the COI framework and intersects with digital critical pedagogies and social pedagogies of care.

Participants will learn about several semester-long classroom community practices to support and enhance a shared sense of community that were implemented across multiple HyFlex courses at one University. They will learn about the course planning that occurred to consider how to elevate social presence in the HyFlex sessions. Examples will be shared and discussed across a variety of HyFlex classroom experiences (i.e., small and large group settings).

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HyFlex Beyond the Hype: Fueling the Evolving Engine of Higher Education

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Abstract

HyFlex learning has been used in higher education since 2006 with moderate adoption until early 2020, and then accelerated adoption during the COVID-19 pandemic. This paper briefly clarifies the meaning and design implications of "HyFlex" and then reviews HyFlex as a technology as it has journeyed through the Gartner Hype Cycle for Higher Education. Lastly, it includes a quick look ahead to the use of AI to support engaged learning and the need for strategic leadership and support in three main areas.

Clarifying HyFlex Basics

Hybrid – combines both online and face-to-face teaching and learning activities. Flexible – students may choose how to participate in learning sessions, in person or online with no "learning deficit" - achieving equitable learning in all modes.

The HyFlex course design, developed at San Francisco State University for graduate courses, allows students to choose between attending in-person classes or completing activities online. This flexible approach lets students create their own mix of online and classroom learning within the instructor's guidelines (Beatty, 2006, 2019). HyFlex was created to offer flexible scheduling for busy students, attract online learners without separate programs, and expand the reach of SF State faculty beyond traditional classroom settings.

Today, the need for such flexibility is even greater. Students juggle work, family, and social responsibilities, making flexible learning options essential. Colleges face declining enrollments and need to attract more students, while faculty feel the pressure to fill their classes to avoid cancellations. HyFlex courses, offered by many institutions globally, address these challenges by using the same resources for both online and classroom learning, making high-quality education more accessible and efficient. Combining multiple modes of instruction can effectively meet the needs of diverse learners without requiring separate delivery paths.

Defining HyFlex

For any institution serious about supporting HyFlex learning, it's crucial to define the term clearly for everyone involved. Faculty who are new to HyFlex, especially those pioneering it in their schools, need a clear definition they can use and share. Here's the most recent definition from San Francisco State University's Online and Distance Education policy:

"HyFlex courses allow students to choose whether to attend each class session in person or online (e.g., synchronous, asynchronous, bichronous). Faculty decide which online mode(s)

will be offered. Due to the online learning mode option for students, HyFlex courses are considered distance education courses."

San Francisco State University. (2023). Online and Distance Education Policy #S23-264. https://sfsu.policystat.com/policy/13710271/latest[1].

Many schools use a similar definition, but the specifics can vary. However, all definitions should meet two key conditions: First, they must include multiple participation modes, with at least one online option and one in-person option. Second, they must allow students to choose which mode to use for each session throughout the course. Without these conditions, it's not truly HyFlex and should be called something else.

Fundamental Design Principles

HyFlex courses and programs should implement these four guiding principles. (Beatty, 2019).

Learner Choice/Alternatives: HyFlex courses must have fully developed participation alternatives: classroom (face-to-face) and online (distance). The online mode might offer both synchronous and asynchronous options when needed and practicable.

> Equivalence: Alternative paths in a HyFlex course must lead to equivalent learning outcomes. These are not "equal experiences" since the experience of learning in any particular mode is bound to be different than learning in any other mode – a strength of HyFlex, in fact – but all modes should lead to equivalent learning, reaching the same student learning outcomes.
> Reuse: Instructional materials and student-generated artifacts from learning activities in each participation mode become learning resources for all students. This can accomplish several good results: keeping the workload for faculty manageable (don't create multiple versions of everything when one will work in all modes) and supporting the development of a learning community through shared experiences among students in various modes.
> Accessibility: Alternative participation modes in HyFlex courses must be accessible to all students. This means that the materials, technology requirements (network, hardware, access to software), and learning skills should be available for all students. This can be very complex, and it's a worthy goal, but one that is often only partially met.

Primary Student Learning Outcomes

> Active and engaged learning: There is a general consensus that active and engaged learning experiences are more powerful in supporting student learning. (Gray & DiLoreto 2015, 2016) When HyFlex courses are re-designed well, each mode should provide an active learning experience to learners. The instruction should be designed intentionally to engage students in their learning process. Effective active

learning practices for each mode will create an active learning experience for all learners. Active, engaged learners will be more successful in their learning.
Learning in community: We know that students learning in online environments are often more engaged and successful when learning in a community. (Garrison, Anderson, & Archer, 2000) Implementing the HyFlex design principle of reuse creates a community experience because we often use the same activities (assignments, content resources, engagement approaches) with students in more than one mode, creating a shared experience that in turn helps form a learning community. In a well-designed HyFlex course, students in all modes share most of the learning experience with students in every mode.
Rich and deep learning: When we design for multiple modes of participation, we create multiple ways to learn from content (reading, watching, creating), develop understanding (discussions, projects, practice activities), and demonstrate understanding (assessment activities). Since all modes (and their embedded variations of learning experiences) in a HyFlex course are open to all students, they have the opportunity to learn in different ways. (Beatty, 2010) Students often choose to learn in multiple ways, such as participating in a live discussion or lecture AND reviewing the recording of that same discussion or lecture later to help them learn.

HyFlex Through the Hype Cycle

(For a more detailed analysis of this topic, see the blog post "HyFlex Moving Through the Hype Cycle and Beyond" available at https://www.hyflexlearning.org/2024/05/10/hyflex-hype-cycle/ (Beatty, 2024a)

Gartner Technology Innovation Hype Cycle

The Gartner Hype Cycle phases (Fenn & Raskino, 2008) can be used to describe and predict the path of HyFlex (as both a set of technologies and a "soft" technology – pedagogy) in higher education. HyFlex, a blend of hybrid and flexible learning, adapts to changing educational needs, undergoing various phases of the hype cycle for technology innovation: Innovation Trigger, Peak of Inflated Expectations, Trough of Disillusionment, Slope of Enlightenment, and Plateau of Productivity.

Stage 1. Technology/Innovation Trigger (2005-2010)

This stage is characterized by the initial emergence of the technology, generating interest and media buzz. For HyFlex, this has been experienced as a "repeated" trigger.

Concept Emergence: HyFlex began in 2005-2006 to offer students participation choices to increase enrollment in small classes and degree programs. (Future Learn, n.d.)
Initial Adoption: The concept gained traction with early adopters seeking flexible learning. Early adoption was scattered and sporadic, without widescale awareness of the new approach.

Re-discovery during the COVID-19 Pandemic: For many, HyFlex was "discovered" in the spring and summer of 2020 as many institutions were searching for best practices in combining in-person and online students in the same classes. (Kohnke & Moorhouse, 2021; Verrecchia & McGlinchey, 2021)

Stage 2. Peak of Inflated Expectations (2020-2021)

High expectations are fueled by hype and speculative success stories.

Rapid Expansion: By 2012-2015, HyFlex saw increased adoption in small implementations, driven by technological advances and increased acceptance and growing research. This hit a whole new level with the global pandemic, which triggered an extreme amount of interest and experimentation with HyFlex around the world. In October 2019 the Hybrid-Flexible Course Design ebook launches with 300,000 views within six months. By July 2021, HyFlex Classrooms are at the peak of the Gartner Hype Cycle for Higher Education.

High Expectations: Institutions anticipated major benefits in engagement and accessibility. Vendors began heavily marketing "HyFlex Classroom Solutions" and institutions used widely available public funding to build out their HyFlex-capable rooms. Major professional development organizations (OLC, EDUCAUSE, HyFlex Learning Community (2021), OneHE, and more) launch HyFlex Course Design workshops. Hundreds of institutions contract for or build their own workshops for HyFlex implementation teams.

Stage 3. Trough of Disillusionment (2022-2023)

The trough of disillusionment is experienced with the realization of the technology's limitations and difficulties in implementing well, leading to disappointment and reduced interest. Continuing an implementation project in this stage requires steadfast effort, structure, and sufficient support.

Challenges Identified: Implementation challenges and unmet expectations led to disillusionment. Three areas of implementation failure prove to be; 1) no strategic vision or support for HyFlex from the institutional leadership, 2) lack of faculty preparedness or willingness to teach differently and with more upfront work required, and 3) technology solutions too complex or not adaptable enough to meet the needs of HyFlex instruction. (Schuman, 2022)

Reevaluation: Institutions reexamined the feasibility and effectiveness of HyFlex models. As campuses recovered on-ground operational capacity, many tried to revert back to full (80% or more) on-campus instruction. But where did all their students go? (McKinsey, 2020)

Stage 4. Slope of Enlightenment (2015-now; depends on context)

The slope of enlightenment is characterized by gradual and widespread understanding and practical applications of the technology beginning to crystallize as more success stories emerge. They may be hope for long-term value, after all!

Increased Understanding: For early adopting institutions, by 2015, deeper insights into effective HyFlex practices emerged in the academic literature (see the HyFlex Learning Community Bibliography page for many examples: https://hyflexlearning.org/bibliography). For implementations during or post-pandemic, this was just starting to happen in 2023 and into 2024. Evidence of HyFlex moving up the slope of enlightenment includes the 2023 Horizon Report from EDUCAUSE, which emphasizes hybrid-flexible (HyFlex) course models that blend online and in-person components as a key trend that universities must embrace to meet student demands for more affordable, flexible, and workplace-relevant education pathways. (EDUCAUSE, 2023)
Improved Implementation: Best practices and success stories began to surface. HyFlex research expands with dozens of dissertations, master's theses, and major industry reports. (HyFlex Learning Community, n.d.; Beatty, 2019)

Stage 5: Plateau of Productivity

In the plateau of productivity, the technology becomes widely accepted and integrated into regular use. Technologies may remain on this plateau for many years, until (or unless) they are disrupted by newer technology that replaces them. (What could that be for HyFlex?)

Widespread Adoption: By 2020, HyFlex became mainstream in some institutions that had strategies for flexible multimode learning before the pandemic and improved strategies for implementation for the long term. For institutions new to HyFlex in the pandemic, this shift is still underway with some reporting significant value already. (See the 2023-2024 section of the HyFlex Learning Community Research Bibliography for examples of this.).
Sustainable Models: Many institutions have developed sustainable HyFlex models, ensuring long-term success. (Betts & Heaston, 2022; Ellucian, 2023; Kai Analytics, 2022)

Throughout the hype cycle, HyFlex maintained its core identity as a multi-modal, flexible teaching and learning approach, even as it continued to evolve and adapt to new challenges and technological advancements. Sticking to its core principles and reflecting agile design in challenging times helps HyFlex-using faculty and institutions ensure flexible and inclusive education for diverse learners. Where are you on this journey? Where is your institution?

Moving Ahead with HyFlex

It is well-established that the HyFlex course model presents a unique opportunity to address the diverse needs of students by allowing them to choose between attending classes in person or online. However, implementing HyFlex effectively involves overcoming several significant challenges, which I often refer to as the "Big Three": strategic direction, administrative support, and faculty readiness. Each of these challenges requires careful planning and execution to ensure the successful adoption and sustainability of HyFlex courses.

In addition to addressing these core challenges, leveraging Generative AI (Gen AI) and GPTs (Generative Pre-trained Transformers) can significantly enhance student engagement in HyFlex courses. These AI tools can simulate various interactive learning experiences, providing asynchronous learners with opportunities for meaningful interaction that they might otherwise miss. This final section explores both the strategic challenges of implementing HyFlex and the potential of Gen AI GPTs to support and improve the learning experience.

Addressing the "Big Three" Challenges for HyFlex

Strategic Direction: Acknowledging the Need and the Possibility

Strategic direction is crucial for the successful implementation of HyFlex courses. Institutions must first recognize the need for flexible learning options and the potential benefits of HyFlex models. According to Beatty (2019), HyFlex courses offer significant advantages in terms of accessibility and student engagement, which can be pivotal in today's educational landscape. However, embracing this model requires a clear strategy.

Leadership and Vision:

Strong leadership is essential to steer the strategic direction. Leaders must articulate a clear vision for HyFlex adoption, emphasizing its potential to enhance learning experiences and accommodate diverse student needs.

Change leadership involves rallying stakeholders around this vision, ensuring that everyone understands the benefits and is committed to the transition.

Teamwork Among Stakeholders:

Effective implementation of HyFlex requires collaboration among various stakeholders, including faculty, students, administrators, and support staff. Each group has a unique perspective and role in the successful adoption of HyFlex courses.

Stakeholders must work together to identify challenges, develop solutions, and share best practices. This collaborative approach fosters a supportive environment conducive to change.

Educating Up:

Educating all levels of the institution about HyFlex is critical. This includes not only students and faculty but also administrators, funders, and accreditors. Providing comprehensive information about the benefits and challenges of HyFlex can help secure the necessary support and resources.

Engaging with funders and accreditors early in the process can also ensure that the HyFlex model aligns with broader institutional goals and regulatory requirements.

Administrative Support for Change:

Administrative support is another key factor in the successful adoption of HyFlex courses. Without it, even the most enthusiastic faculty and students will struggle to implement and sustain these courses.

Technology for Classroom and Online:

Providing the right technological infrastructure is essential. This includes reliable internet access, adequate hardware (such as computers and cameras), and suitable software platforms for online learning and classroom management (Beatty, 2019).
Institutions must invest in technology that supports seamless integration between in-person and online modes, ensuring that all students have access to high-quality learning experiences regardless of their chosen mode of participation.

Support for Faculty and Students:

Faculty and students both need robust support systems. For faculty, this might include professional development opportunities, instructional design assistance, and technical support.
Students need access to academic advising, technical support, and resources that help them navigate the HyFlex environment effectively. Providing comprehensive support can help mitigate the challenges associated with this flexible learning model (EDUCAUSE, 2023).

Realigning Policy, Practices, and Systems:

Institutions may need to revise existing policies and practices to accommodate the HyFlex model. This could involve changes to scheduling, assessment methods, and classroom management practices.
Aligning institutional systems, such as registration and course management, with the needs of HyFlex courses can streamline implementation and improve the overall student experience.

Faculty Willingness, Preparation, and Skill

The success of HyFlex courses largely depends on the willingness, preparation, and skill of faculty members. Faculty must be willing to embrace new teaching methods and invest the necessary time and effort to learn and implement HyFlex strategies.

Technology-Mediated Teaching:

Faculty need to be comfortable with technology-mediated teaching. This includes using various online tools and platforms to deliver content, facilitate discussions, and assess student learning.
Professional development programs can help faculty acquire the necessary technical skills and confidence to teach in a HyFlex environment (Beatty, 2019).

Managing Workload and Workflow:

HyFlex teaching can increase faculty workload due to the need to design and manage multiple modes of instruction simultaneously. Institutions should recognize

this and provide adequate support and resources to help faculty manage their workload.

Effective time management and workflow strategies are crucial. Faculty may need to adopt new approaches to planning, organizing, and delivering their courses to ensure a balanced workload.

Facilitating Engaged Student Learning:

Engaging students in a HyFlex environment requires a high level of skill and dedication from faculty. They must create interactive and inclusive learning experiences that engage students regardless of their mode of participation.

Faculty should focus on active learning strategies that promote engagement, such as collaborative projects, interactive discussions, and practical applications of course content.

GPTs That Simulate Learning Interactions

With new Gen AI developments, we can now provide students with access to prepared GPTs that engage them in interactive discussions that follow a pre-set protocol designed to support an area of interaction that many students in synchronous class modes experience but that is very hard or impossible for asynchronous learners to experience. I have built a number of GPTs that support them in specific interactions. In this paper, I'll provide a list with brief explanations and links to the GPTs and example interactions. (See Beatty (2024b) for a more detailed explanation of this development effort.) All GPTs were built using ChatGPT 4o in May 2024 and are hosted in OpenAI's ChatGPT GPT Store.

GPTs to simulate an interaction with the instructor

1. Course Syllabus Explorer: https://chatgpt.com/g/g-4LeAbz53C-course-syllabus-explorer

The Course Syllabus Explorer provides a way for students to ask questions about the course expectations, assignments, schedule, grading, and anything included in the syllabus. This can help students who have immediate questions about the course design and the planned learning experiences who aren't involved in a synchronous class meeting. It can also help students prepare for a syllabus quiz, should there be one in the class.

Review an example interaction: https://chatgpt.com/share/d2f22f5c-3483-42fa-9dd2-cfaf9e6740d5 2. HyFlex Mode Chooser: https://chatgpt.com/g/g-393ZBidID-hyflex-mode-chooser.

The HyFlex Mode Chooser provides a way for students to get help understanding which participation mode would be best for them in their HyFlex class. The GPT uses several source documents that describe the choice process recommended by HyFlex designers and instructors (HyFlex Learning Community, n.d.) and brings in the LLM general information about the advantages, challenges, and requirements to learn well in any mode. This interaction is similar to one that might take place in an opening class session with the instructor or office-hour conversation.

Review an example interaction: https://chatgpt.com/share/d3b29c58-6f14-4dba-bbb5-89aa44bbd3a3 GPTs to simulate an interaction with peers (one or more)

1. Breakout Companion: https://chatgpt.com/g/g-wwwqeOwfC-breakout-companion

The Breakout Companion provides a simulated two-person breakout discussion. This could be very short, like a "think-pair-share" activity, or longer like you might find in a 10-20 minute (or longer) class breakout group discussion. At the end of the discussion (prompted by the student), the GPT can provide a short summary for a typical class debrief. (This could be used as evidence of completing the activity if it were assigned by the instructor.)

Review an example interaction: https://chatgpt.com/share/7fea98fd-8555-406a-bb54-b3da3a50b78b

2. Peer Review Partner: https://chatgpt.com/g/g-3yXBtRruh-peer-review-partner

The Peer Review Partner offers a simulated two-person discussion of a written assignment. Students are required to submit their assignment draft along with any available assignment requirements and grading rubric. The GPT, on the other hand, only necessitates the draft written assignment, which can be uploaded as a file attachment or pasted into the GPT response field.

Review an example interaction: https://chatgpt.com/share/ad65787a-7974-40de-8fe7-39dc2dc8915f GPTs to simulate interactions with content expert or fellow-learner

1. My Learning Helper: https://chatgpt.com/g/g-M3gJhxpUh-my-learning-helper

The My Learning Helper provides a classic approach to a tutoring session. This is an approach that has been used for many years with intelligent tutoring systems and more recently with AI Tutors. This interaction is similar to one that might take place in a formal or informal tutoring session, a casual conversation before or after class, or with the instructor in an office-hour conversation.

Review an example interaction: https://chatgpt.com/g/g-M3gJhxpUh-my-learning-helper 2. Quiz Me!: https://chatgpt.com/g/g-XyYd33WJu-quiz-me

The Quiz Me! GPT provides typical quiz questions to a student, varying the type of response required (not just multiple choice or true-false) and continuing to ask questions as long as the student wants to continue. Since the GPT can be replayed at any time for a different set of questions on the same topic, students who want more quizzing interaction can have as much as they want.

Review an example interaction: https://chatgpt.com/share/678fde49-0d29-4da2-b6f0-4edd3c086179 The Potential and Challenges of AI-supported Interactions

As you experience the power of Generative AI to provide human-like interactions like those provided in these GPTs, you'll be amazed at the possibilities for engaged learning.

Closing Thoughts

The promise of HyFlex learning lies in its potential to revolutionize the educational experience by providing students with the flexibility to choose between in-person and online participation, meeting the diverse needs of today's students, who juggle multiple responsibilities alongside their education. However, the journey of adopting HyFlex is not without its challenges. Addressing the "Big Three"—strategic direction, administrative support, and faculty readiness—is crucial for ensuring the successful implementation and sustainability of HyFlex courses. Without leadership, vision, support, and prepared faculty, the evolution of higher education stalls; the engine sputters, and learning opportunities may continue to diminish.

However, by strategically embracing HyFlex, institutions can create a more inclusive and engaging learning environment, effectively fueling the evolving engine of higher education. The integration of Generative AI (Gen AI) and GPTs (Generative Pre-trained Transformers) further enhances this model, providing interactive and meaningful learning experiences for asynchronous students. As we continue to refine these innovative approaches, we pave the way for a more adaptable and effective educational landscape that benefits students today and prepares them for the

challenges of tomorrow. HyFlex indeed has the potential to make learning more accessible, equitable, and engaging, driving the future of education forward.

To learn more about the HyFlex movement:

●explore the resources at the HyFlex Learning Community (https://hyflexlearning.org), ● prepare to design and teach a HyFlex course by participating in professional development (https://www.hyflexlearning.org/workshops/),

● review the hundreds of studies providing evidence of learning impact, student impact, and the faculty experience with HyFlex linked in the HyFlex Research Bibliography

(https://www.hyflexlearning.org/bibliography/).

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Engaging “Accidental” Asynchronous HyFlex Learners with GenAI GPTs

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Abstract

Some students in HyFlex courses are compelled by circumstance to learn asynchronously, where they face high transactional distance in the online setting due to low interpersonal dialogue and high course structure. Generative AI, specifically GPTs, can help these students by simulating interactive learning experiences that can increase the perception of interpersonal dialogue and customize learning activities in ways that reduce the course structure in interesting ways. Various GPT applications, such as simulating instructor interactions, peer discussions and assignment reviews, and personalized quizzing have been developed for use in higher education. These AI tools can provide asynchronous learners with rich, supportive interactions, mimicking the engagement found in synchronous settings and enhancing their overall learning experience.

Engagement is a Problem with “Accidental” Asynchronous Learners in HyFlex

In today's educational landscape, many students find themselves learning asynchronously, often due to unavoidable scheduling or location conflicts. These "Accidental" Asynchronous learners frequently struggle with the high structure and limited interpersonal interaction typical of online courses. This lack of engagement can hinder their learning success.

A significant challenge for educators in HyFlex course environments is creating engaging learning experiences for students, particularly those who did not choose to learn asynchronously but are compelled by circumstances (Beatty, 2019; Gray & DiLoreto, 2015, 2016). These "Accidental" Asynchronous learners might prefer synchronous learning but cannot participate due to various constraints. As a result, they often face difficulties adapting to the online mode, which can feel isolating and rigid.

Transactional Distance

The concept of "transactional distance" explains why asynchronous learning can be challenging for many students. Transactional distance refers to the psychological and communication gap between instructors and students in distance education (Moore, 1997). (See Figure 1.) Asynchronous courses typically feature low levels of interpersonal dialogue because students and instructors are not present at the same time, and interactions usually occur through text-based media like discussion forums and email. Additionally, these courses often have a high level of structure, with content, activities, and assessments fixed in place before the course begins, leaving little room for adaptability based on immediate student needs.

Figure 1. Representation of Transactional Distance in Learning Environments

Learner Autonomy Mismatch

In courses with high transactional distance, students with high learner autonomy (those who can learn independently) tend to succeed more than those with low learner autonomy.

Students with low learner autonomy are more dependent on their learning environment and the interactions it provides. Synchronous courses with low transactional distance typically offer high dialogue (verbal interaction) and low structure, allowing students to ask questions and influence the direction of the class to fit their learning needs.

Table 1. shows the relative differences in student experience characteristics among the typical participation modes of a HyFlex course.

Table 1. Transaction Distance in a HyFlex Course by Participation Mode

In a HyFlex course, where some students may be forced into the asynchronous mode, it is crucial to support their need for interaction and flexibility. How can we provide these students with the high dialogue and low structure they need to thrive?

Generative AI May Help

Generative AI, especially GPTs (Generative Pre-trained Transformers), can help address this issue. AI tutors have been used for years to support learners through dialogue-based interactions, dating back to tools like SCHOLAR in 1970 (Guo et al., 2021). However, many educators have not used AI tutors until recently. Experiments with AI participants in discussions have shown promising results (Spence et al., 2024). Still, their intentional use with students in higher education is just beginning with a lot of informal experimentation in progress.

Chatbots as Study Aides

Chatbots can serve as highly effective study aides for college students, functioning similarly to AI tutors. These AI-driven tools are capable of providing personalized assistance and support on a wide range of subjects. By leveraging natural language processing, chatbots can engage in real-time conversations, answer questions, and offer explanations on complex topics, thereby enhancing the learning experience. For instance, a student struggling with a particular concept in mathematics can interact with a chatbot to receive step-by-step guidance and clarifications. Moreover, chatbots can adapt their responses based on the student's progress, ensuring a tailored learning experience that addresses specific needs and gaps in understanding. Research indicates that AI tutors can significantly improve students' academic performance by providing timely and individualized feedback (Guo et al., 2021).

Providing Prompts to Focus Chatbot Conversations

To facilitate more complex interactions with chatbots, educators can provide students with specific prompts designed to guide the AI's responses. These prompts help structure the conversation, making it more focused and productive. For example, a prompt might instruct the chatbot to act as a peer reviewer, offering detailed feedback on a student's essay according to a provided rubric. By doing so, students can receive comprehensive and constructive criticism, which is crucial for their academic development. Additionally, structured prompts can simulate various educational scenarios, such as mock interviews or problem-solving sessions, enabling students to practice and refine their skills in a controlled environment. The effectiveness of this approach is supported by studies that highlight the benefits of using AI-driven interactive tools to enhance learning outcomes through targeted and relevant interactions (Mollick & Mollick, 2023).

GPTs to Simulate Learning Interactions

When teachers provide prepared GPTs for students to interact with, rather than relying on students to copy and paste AI prompts into an AI interaction, both students and teachers experience several key benefits. For students, the primary benefit is ease of use. Prepared GPTs eliminate the need for students to understand how to structure their interactions with the AI, making it simpler and more accessible for all learners, regardless of their technical proficiency. Students can directly engage with the content without the potential frustration of formatting errors or misunderstandings about how to use the prompts. This streamlined interaction allows students to focus more on their learning objectives rather than on the mechanics of interacting with the AI. Additionally, prepared GPTs can offer a more consistent and reliable learning experience, as the responses and interactions are designed to be more predictable and aligned with the course content and objectives.

For teachers, providing prepared GPTs ensures a higher degree of control over the educational content and the interactions students will have with the AI. This control allows educators to design specific learning pathways

and interactions that are closely aligned with their instructional goals and the needs of their students. Teachers can tailor these interactions to address common misconceptions, reinforce key concepts, and provide differentiated support to students at various levels of understanding. Moreover, by using prepared GPTs, teachers can monitor and analyze the interactions more effectively, gaining insights into student progress and areas where additional support may be needed. This data-driven approach can help teachers make informed decisions about their instructional strategies and provide targeted interventions to support student learning.

For HyFlex students learning in the asynchronous online mode, I have built a number of GPTs that support them in specific interactions. [I provide these to students all modes of my HyFlex courses, though I intend them to be most useful to those in asynchronous modes.] Next, I'll provide a list of these GPTs with a brief description and explanation of their purpose and operation, a direct link to the GPT, and a link to an example interaction for each. I provide one sample GPT "recipe" to show a GPT prompt - the core of the GPT. All GPTs were built using ChatGPT 4o in May 2024 and are hosted in OpenAI's ChatGPT GPT Store (https://chatgpt.com/gpts). Importantly, all of these should be accessible to students who do not need an upgraded ChatGPT account as of late May 2024. (Dignan, 2024)

A. GPTs to simulate an interaction with the instructor

1. Course Syllabus Explorer: https://chatgpt.com/g/g-4LeAbz53C-course-syllabus-explorer.

The Course Syllabus Explorer helps students explore and understand their course syllabus. It allows them to ask questions about course expectations, assignments, schedules, and grading, providing detailed responses based on the uploaded syllabus. This can help students who have immediate questions about the course design and learning experiences, and it can also help them prepare for a syllabus quiz if one is included in the course.

Review an example interaction: https://chatgpt.com/share/d2f22f5c-3483-42fa-9dd2-cfaf9e6740d5 2. HyFlex Mode Chooser: https://chatgpt.com/g/g-393ZBidID-hyflex-mode-chooser.

The HyFlex Mode Chooser assists students in choosing the best participation mode for their HyFlex courses. By considering the students' circumstances, it offers tailored advice to help them decide between synchronous and asynchronous learning.

Review an example interaction: https://chatgpt.com/share/d3b29c58-6f14-4dba-bbb5-89aa44bbd3a3 B. GPTs to simulate an interaction with peers (one or more).

1. Breakout Companion: https://chatgpt.com/g/g-wwwqeOwfC-breakout-companion.

The Breakout Companion simulates a peer discussion, helping students engage in a virtual "think-pair-share" activity. It mimics the dynamic of a real breakout group, offering a summary of the discussion to ensure comprehension and participation.

Review an example interaction: https://chatgpt.com/share/7fea98fd-8555-406a-bb54-b3da3a50b78b 2. Breakout for Three: https://chatgpt.com/g/g-IWfJNpvzC-breakout-for-three.

The Breakout for Three GPT offers a simulated three-person breakout discussion, with the AI assuming two roles: a "more knowledgeable other" and a naïve learner, based on Vygotsky's concepts (1978). This setup allows students to engage with peers of varying understanding levels, providing a rich learning environment. The activity typically lasts 20-30 minutes, longer than a standard two-person session, and mimics the natural flow of real discussions, helping students develop the skill of maintaining momentum. Asynchronous learners can immerse themselves in a simulated synchronous experience, similar to a genuine breakout conversation. The GPT can offer a summary for class debriefs and steer the conversation based on provided prompts, allowing deeper exploration of topics. Each interaction is unique, and students can use the GPT multiple times to further explore the subject matter.

Review an example interaction: https://chatgpt.com/share/430025fe-9fd4-4009-92ec-cf95f0e84461 3. Peer Review Partner: https://chatgpt.com/g/g-3yXBtRruh-peer-review-partner.

The Peer Review Partner simulates a peer review session for written assignments. Students can upload their drafts and receive detailed, constructive feedback, similar to discussing their work with a knowledgeable peer.

Review an example interaction: https://chatgpt.com/share/ad65787a-7974-40de-8fe7-39dc2dc8915f. The underlying prompt used to create the Peer Reviewer GPT:

You are a peer reviewer partner who provides feedback on written assignments. You will ask for a rubric, an assignment description, and the assignment itself, which the user will upload as files. You will analyze the assignment based on the provided description, rubric, and any other relevant materials you have access to. Emphasize alignment with the relevant parts of the grading rubric, the assignment description, and the background information you have about the topic of the paper. Ignore any aspects of the assignment that are not relevant to the peer review of the paper, such as presentations or other non-paper components. You will provide up to ten comments to help the user improve their work. After giving your feedback, you will ask the user if they would like more suggestions. Communicate in a kind, patient, helpful, encouraging, and friendly manner. Use an informal tone when appropriate but switch to a formal tone when describing formal aspects of the paper. Provide feedback one comment at a time. After each comment, ask the user if they

understand the feedback or have any questions about it. Wait for a response before asking if they would like the next comment. When the user is finished receiving comments, ask them if they would like your recommended list of revisions to make, being brief with these comments and providing them in your recommended priority order. Estimate the amount of time each revision could take an average college student. After providing the prioritized list of recommendations, ask them if they would like help finding the San Francisco State University Tutoring Center. If they say no, ask them if they have any other questions. When they have no more questions, end with a short note of encouragement to continue learning.

C. GPTs to simulate interactions with content expert or fellow-learner

1. My Learning Helper: https://chatgpt.com/g/g-M3gJhxpUh-my-learning-helper.

The My Learning Helper acts as a virtual tutor, helping students understand various concepts by providing explanations and answering questions. It can be particularly useful for students needing extra help with specific topics.

Review an example interaction: https://chatgpt.com/g/g-M3gJhxpUh-my-learning-helper 2. Quiz Me! https://chatgpt.com/g/g-XyYd33WJu-quiz-me.

The Quiz Me! tool offers personalized quizzes to help students self-assess their understanding of course material. It provides immediate feedback and can adapt to the student's performance to offer more targeted questions.

Using GPT-based quizzes offers significant benefits over traditional teacher-prepared quizzes. These AI-driven quizzes provide a personalized learning experience, adapting to each student's pace and understanding. When a student answers incorrectly, the AI can offer instant, tailored feedback and explanations, reinforce concepts and address misconceptions in real time. This immediate feedback loop ensures students do not carry forward misunderstandings. Additionally, GPT-based quizzes can generate varied questions, ranging from simple recall to higher-order thinking, helping students grasp the material comprehensively and apply their knowledge in different contexts.

GPT-based quizzes also enhance engagement and motivation due to their interactive nature. They provide flexibility, allowing students to access quizzes anytime and fit their study schedule. This is particularly beneficial for asynchronous learners. The conversational format can accommodate different learning styles, making the material more accessible. Furthermore, these quizzes support continuous assessment, enabling students to track their progress, identify areas for improvement, and build confidence over time. Overall, GPT-based quizzes offer a dynamic, adaptive, and engaging way for students to understand and retain course material more effectively.

Review an example interaction:

The Potential Benefits and Challenges of AI-supported Interactions

Generative AI can really enhance the learning experience by providing human-like interactions through GPTs. These tools can make learning more engaging for many students, both in asynchronous and synchronous HyFlex courses. When we create activities for asynchronous learners, everyone benefits because these resources can be used across different learning modes. The key is for students to spend time with these tools outside of class, which usually leads to better learning outcomes (Godwin et al., 2016). By making the course feel less structured and more interactive, GPTs can help reduce the sense of distance

in online learning, which is crucial for students who need more support and interaction, like the "Accidental" asynchronous learners.

However, there are challenges to consider. Students need access to technology and a stable internet connection, but this doesn't have to be high-end; even a smartphone on a decent network can work. It's important to have easy access to the GPT links anytime, day or night. Students might also need AI accounts, which the school could provide if necessary. To get the most out of these tools, students need to know which GPT to use for their specific learning needs and develop skills in using chatbots effectively. This includes knowing what questions to ask and how to evaluate the AI's responses, especially when learning new concepts.

While AI interactions cannot fully replace human interactions in education, they offer a valuable supplemental experience, especially for students who struggle with the autonomy required in asynchronous learning environments. By leveraging GPTs, educators can better support "Accidental" Asynchronous learners, helping them achieve their educational goals.

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Evaluation of the Equivalency in HyFlex Group Discussions: A Learning Analytics-Based International Comparative Approach

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Abstract

Ensuring an equivalency in the engagement between face-to-face and remote students represents a usual challenge in HyFlex group working activities. A data-informed approach can contribute to overcoming it, through the application of metrics which can, for instance, guide the design of the learning environments and of the learning activities. This paper presents a Learning Analytics framework developed by a Japanese university, and applied in a series of experiments conducted in late 2024 at the international level. These experiments especially intended to comparatively identify the impact of country/culture, A/V setup and discussion type on the engagement of face-to-face and remote students. It also presents the first results obtained and the perspectives already envisioned for the continuation of this research.

Keywords:

Learning Analytics; Engagement; Equivalency; International

Introduction

The equivalency core principle of HyFlex supposes an equivalent learning experience between the three modalities. In particular, ensuring engagement from both the face-to-face students and the remote synchronous ones usually represents a challenge (Beatty and al., 2019). Different parameters can impact this equivalency. In this study, we focused on three of them: the A/V setup (use or not of the camera for visual contact), the type of discussions led during the group learning activities, and the country and culture of the group members. We intend to clarify the relationship between different combinations of these factors and the utterance (as a marker of engagement) within a group of face-to-face and synchronous remote participants, through a Learning Analytics framework. For that purpose, we rely on two hypotheses:

It is possible to evaluate the equivalency in the HyFlex group discussions by analyzing the duration and the number of times the participants speak.

The parameters listed above (A/V setup, type of discussions, country of residence) taken individually and/or combined can reveal differences in HyFlex group discussions.

The following chapters present our methodology, the first results obtained, and the future works and perspectives we envision for this research.

Methodology: Parameters and experimental conditions

Three universities were selected from Asia, North America and Europe to ensure a significant diversity of territories and cultural backgrounds: Sophia University (Tokyo, JP), San Francisco State University (San Francisco, US, with Dr. Brian Beatty, Professor of Instructional Design and Technology), and Thomas More University (Antwerp, BE, with Ms. Mia de Wilde, Director of ICTS).

For each of these universities, three discussion types were selected to fit with potential collaborative activities to be led in a HyFlex configuration: Brainstorming, Consensus Building, and Debate. The topics to be discussed in each type were chosen by the organizers and were the same in the three countries. They were all different for each experimental condition and were chosen to be equal in terms of knowledge between all subjects.

Each discussion type was led twice: once with the camera ON on each individual computer, and once with the camera OFF.

In each country, in order to test the two other parameters, six of these group discussions were led, thereby reflecting six experimental conditions: three with the camera ON for the three discussion types, and three other ones with the camera OFF, also for the three discussion types (Figure 1).

Organization of Experiments

The experiments were conducted in the same conditions in November and December 2024. They involved for each university a group of four students, two of them in a face-to-face situation, and the two others in a remote one (in a simulated way by having them individually seated in another room, or in a real remote situation). Each subject was individually connected to a videoconferencing system (Zoom) on a laptop or desktop computer. In each group, the four students already knew each other beforehand.

The experiments consisted of 10-minutes group discussions. For each country of residence, the six group discussions were led on the same day (except Japan, where the experiment was conducted twice).

Metrics and Data Acquisition

The data collected were the individual audio files obtained from the recording feature of the videoconferencing system. These files were uploaded into Hylable, a service which analyzes the volume of speech in web conferences. The outputs of this quantitative analysis were for each subject the number of speeches and their length.

Results and Discussion

Visual display of the results

The collected data were converted to a graph for each country and each experimental condition.

Results

We applied the visual scheme described in 3.1 to each group and to each experimental condition for each country (Figures 3, 4 & 5), and thereby we obtained a matrix of graphs allowing us to compare the results to each other.

Beyond, we conducted Levene tests and calculated Gini indexes. From this set of results, we could draw the conclusions presented hereafter.

Distribution of the speaking time among group members

The calculation of the Gini index for each country (Table 1) highlighted that Japan shows the highest non-equivalency in the participation in the group discussions. Unlike the US and the Belgian ones, the Japanese group tended to rely on highly speaking members, and counted members speaking little and who seemed to rely on others. This can reflect phenomena such as the sucker effect and/or free rider effect (Kerr, 1983).

Impact of the activation of the camera

The conduction of a Levene test for each country on the speaking time (Table 2) highlighted that the activation or deactivation of the camera had a significant effect only in the US group. This group seemed to rely the most on non-verbal information's such as eye contact (Augeri, Tamura and Morishima, 2024; Morishima, Horikoshi and Tamura, 2022).

The calculation of a Gini index for US (Table 3) showed that camera OFF was ensuring the best equivalency.

Impact of the discussion type

The conduction of a Levene test for the speaking time per discussion type (Table 4) revealed that the choice of discussion type did not affect the dispersion of speaking time among the participants, in any of the countries.

However, the calculation of the number of turn-takes for each discussion type highlighted that Debate was the format showing the lowest number, regardless of the country (Figure 6).

The variations among the different countries might also be discussed in the light of communication culture aspects (Meyer, 2016).

Future Work and Perspectives

This first round of experiments already provided results able to guide the design of the A/V component of HyFlex learning environments (using camera or not) and learning activities (defining the type of discussion). Not surprisingly, it also highlighted the impact of country and culture on the way students might engage into such activities. We identified two main limitations to be addressed in future works.

The first one deals with the international range of the experiments. Widening them to a larger selection of countries would allow to emphasize on the intercultural approach of these HyFlex Learning Analytics.

Secondly, conducting the experiments comparatively with groups of the size we had (four people) and larger ones would not only help to verify our first results, but also to identify the very impact of the group size on the engagement of the participants.

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Students' Experiences and Perspectives in Universally Designed ByFlex Courses

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Abstract

In a HyFlex classroom environment, students can choose to attend courses in person, online synchronously, or online asynchronously, depending on their preferences and learning needs (Beatty, 2019). More specifically, ByFlex (also known as BiModal) refers to a learning model that combines two of those modalities within a single course (Shields, 2023). Strategies suggested by Littlefield (2023) offer an opportunity to explore how ByFlex courses can be personalized to increase engagement. Moreover, by combining ByFlex engagement strategies with Universal Design for Learning (UDL), instructors can maximize peer to peer learning and social experiences that bring a community of learners together in unique and meaningful ways. Join us for a session that showcases Universally Designed ByFlex course strategies utilized in three teacher education courses and refined over two years post-COVID era. Student interviews and survey data are shared to highlight perspectives on the benefits of universally designed "high touch" practices. Attendees will receive a QR code linking to an e-module that shares strategies and ways to incorporate strategies into ByFlex courses.

Introduction

Lessons learned from the pandemic allowed institutions to capitalize on technology to provide flexible multimodal approaches to support online and in-person students. These technological approaches are becoming increasingly desirable and expected by students for higher education enrollment (McCormack, 2023; Penrod, 2022). HyFlex and ByFlex are two approaches that are being offered in higher education environments to support student needs. In a HyFlex classroom environment, students can choose to attend courses in person, online synchronously, or online asynchronously, depending on their preferences and learning needs (Beatty, 2019). ByFlex (also known as BiModal) refers to a learning model that combines two of the HyFlex modalities within a single course (Shields, 2023).

It is equivocal that when offering student flexibility and choice through models like HyFlex or ByFlex, courses must maintain high-quality instruction and learning experiences; which is noted as a challenge with these models when instructor capacity, time, and resources are not adequately allocated to ensure a successful delivery of these courses (Beatty, 2019; Schaberg, 2022; Wong et al., 2023). This conference presentation centers on specific student engagement strategies to support ByFlex courses; however, much of the research and foundation of the field begins with Beatty's (2019) HyFlex design work and the research in the HyFlex learning environment (Beatty, 2019, Wong et al., 2023). Therefore,

before describing ByFlex and the conference session objectives, a summary of the state of the HyFlex research field is necessary.

In a HyFlex classroom environment, students can choose to attend courses in person, online synchronously, or online asynchronously, depending on their preferences and learning needs (Beatty, 2019). The design of HyFlex courses is guided by four fundamental values that prioritize student choice, flexibility, reusability of course learning materials, and accessibility in course design within multimodal learning environments. Values are not isolated; rather they are a series of principles that can be coalesced together to maximize pedagogical or technological benefit. For example, course materials that are in various digital formats and archived in learning management systems can serve as a strategy for reusability and for increasing the digital accessibility of learning materials that is encouraged by the National Center on Accessible Educational Materials (i.e., AEM Center) serving both as reusable and accessible. It is important to recognize that recent studies (Wong et al., 2023; Reyes, 2020) underscore the advantages of offering multiple modalities in a single course while also acknowledging the challenges instructors face in maintaining continuity and fostering social interaction in these environments. A comprehensive analysis of HyFlex research by Wong et al. (2023) reveals several factors influencing the adoption of HyFlex courses, including the need for students to develop a sense of social presence and the difficulties instructors face in providing equitable support across synchronous and asynchronous modalities which was specifically noted in recent studies (Maloney & Kim, 2020; Raes et al., 2020). Technical challenges that arise in technology-supported classrooms also play a significant role in this context (Wong et al., 2023).

ByFlex (also known as Bimodal Flexible) is an emerging term used to describe a combination of two modalities, providing an alternative to the HyFlex model (Shields, 2023). This approach allows for real-time (synchronous) learning for both online and in-person students, with the instructor physically present in the classroom on campus. The distinguishing factor between HyFlex and ByFlex is that ByFlex is the intentional designing of two modalities rather than three as described by Beatty (2019). According to Shields (2023), ByFlex might encounter fewer challenges than HyFlex because it eliminates the need for dual delivery to two synchronous groups of learners simultaneously, addressing some inherent challenges of the HyFlex model. However, ByFlex is still a relatively new concept in the blended learning models, and an under researched field of study. Moving towards delineating promising practices in ByFlex, (Littlefield, 2023) suggests that when intentionally planned with high-touch points in BiModal (i.e., ByFlex), students can “feel more engaged, connected, and motivated throughout their online learning experience, and not be penalized for missing class (Littlefield, 2023, p.1).” High touch points are moments of personal connection, and a higher level of student engagement and collaboration often established in a multimodal classroom. Combining high-touch points strategies with decades of research that has shaped educational practices towards universal design moves blended learning forward in an innovative and accessible way (Abegglen et al., 2021; Evmenova, 2018; Gravel et al., 2017; Hollingshead, 2018; Rose et al., 2005; Rose & Meyer,

2002). High touchpoints in a ByFlex course combined with Universal Design principles offer a promising approach to a complex multimodal environment.

Session Description

The session will begin with a brief introduction of key terminology, such as ByFlex, bimodal, HyFlex, and trimodal learning. The session presenters will move to sharing universal design for learning principles alongside the Fundamental Values and illustrate ways that pedagogical and technological strategies can be lensed towards universal design for learning. Some of the strategies shared are ones already recognized in the field (Keiper et al., 2021; Littlefield, 2023; Macharaschwili, & Coggin; 2018; Welch et al., 2021; Macharaschwili, & Coggin; 2018) and other strategies are unique to a mini grant focused on bringing HyFlex design innovation to a teacher education program. Each strategy will be visually shared explicating recognizing engagement, representation, and action/expression to describe how the strategy increased access in purposeful, resourceful, and strategic ways. The pictures add an enriched experience to allow attendees an opportunity to visualize how students are engaged in ByFlex environments and how classroom technology, pedagogical approaches, and other course materials were used to elevate the student experience in these courses. The introduction and strategies portion of the presentation is half of the session time.

The second portion of the presentation will detail a research study that interviewed and surveyed students in ByFlex courses over two years. Students were surveyed and interviewed on their perceptions and preferences of these strategies. The survey and interview were designed with the Community of Inquiry framework (Garrison et al., 2001). Specific to this session, the presenters will focus on the perspectives of students on their social presence and ways in which the engagement strategies strengthened or diminished their sense of belonging with one another. The session will end with sharing a QR code that will direct attendees to an e-module that provides step-by-step information on how to universally design a ByFlex course.

Session Objectives and Outcomes

Attendees will hear from two instructors who designed their ByFlex courses differently, illustrating how classroom technology and other course materials were used to support a more collaborative and universally designed experience.

Attendees will learn ten UDL-lensed strategies; some of the strategies being unique to the course design of these instructors with the use of iPads and session navigator scripts.

Attendees will receive A QR code linking to an e-module designed to provide attendees with current research and step-by-step examples of how to universally design a ByFlex course.

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The Impact of HyFlex Education in K-12 Schools: A Preliminary Glance

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Keywords:

HyFlex Education, K-12 Schools, Student Engagement, Retention, Educational Flexibility

Abstract:

This presentation evaluates the impact of HyFlex education in two K-12 schools, focusing on attendance, engagement, effective modalities, retention, and school sustainability. Preliminary findings indicate positive outcomes, with significant implications for future educational practices.

Objectives of the Presentation:

- To present findings from a pilot project on the impact of HyFlex education in K-12 schools.
- To discuss the implications of HyFlex K-12 education for student attendance, engagement, retention, and school sustainability.
- To provide recommendations for educators and policymakers on optimizing HyFlex implementation in K-12 settings.

Relevance to the Conference Theme and Significance to the Field:

This presentation aligns with the conference theme of Unleashing Education: Adopting and Adapting HyFlex for Student Learning by exploring two innovative implementations of HyFlex models in K-12 education. The significance of this pilot project lies in its potential to inform and enhance educational practices, ensuring that schools can adapt to diverse student needs and promote long-term success. The findings contribute to the growing body of research on flexible learning models and provide actionable insights for improving educational outcomes in K-12 settings.

Upon Attending the Conference Presentation, Participants Will:

- Gain an understanding of the HyFlex education model and its application in K-12 schools.
- Learn about the key factors influencing the success of HyFlex education, including effective modalities and student engagement strategies.
- Acquire knowledge on the impact of HyFlex education on attendance, retention, and school sustainability.
- Develop insights into best practices for implementing HyFlex models in K-12 education to optimize student outcomes and promote educational resilience.

Conference Proposal Summary:

During the past four years, Dr. Rivera-Wilson and I have been exploring HyFlex education in higher education, as well as HyFlex learning in K-12 environments (Riley & Rivera-Wilson, 2023). We have explored our research questions by surveying in-service and pre-service teachers and administrators on their perceptions of Hyflex learning environments; exploring models of successful K-12 HyFlex endeavors, and studying the benefits and challenges of multimodal instruction in elementary, middle, and high schools. In this particular presentation, we highlight two successful HyFlex model schools.

The pandemic has underscored the importance of flexibility in K-12 education, and more schools are acknowledging that a one-size-fits-all approach is not suitable for all students (Rivera-Wilson & Riley, 2023). The integration of hybrid flexible education models offers a dynamic approach to addressing diverse student needs while promoting a more adaptable learning environment. This presentation evaluates the impact of HyFlex education on two K-12 schools, examining critical elements such as attendance, engagement, effective modalities, retention, and school sustainability.

Previous research on HyFlex models in higher education has demonstrated positive outcomes in terms of student flexibility, satisfaction, and academic performance. However, several studies have explored the implementation and effectiveness of HyFlex models in K-12 settings. This preliminary project seeks to fill this gap by providing empirical evidence on the impact of HyFlex education on younger students (Beatty, 2019; Plankas & Jun Zhang, 2015).

The first school profiled is a HyFlex K-12 School in the West Coast of the United States. The state where they school was located had a grant that supported alternative education options. This school runs a completely HyFlex model within a district, and is a public school with a public funding model. Parental permission is needed to join the school's HyFlex experience. There are over 4000 students in the entire district, with 170 students utilizing the HyFlex model. The school has a separate administration team for the HyFlex school, which is more interdisciplinary and project based than other schools in the district. Teachers at the school report to the school for work, and students can choose to attend in person, synchronously, or asynchronously. Students also must attend 5 mandatories in person activity days per school year.

The students who choose the HyFlex model were those who weren't happy with the traditional school climate, and who wanted something more personalized. Other students were assigned to the Hyflex model because they needed it as a disability or behavioral accommodation. For many, the HyFlex environment has given them "a start to a new beginning" and a mind-set change. One of the major benefits of the model is that the district is not losing money for students who might have left for other schooling options if the HyFlex choice was not given. Other benefits include social interactions HyFlex students have, working with students in all modalities. The district sees the accommodation model as successful and has invested money, staff, and faculty to support it. In terms of data, the

school does not see a difference between those who choose in-person options and those who chose HyFlex options. HyFlex students in the 3rd grade scored highest in the district in terms of standardized testing.

In terms of challenges, for younger students, social emotional learning and literacy content sometimes is a challenge to transfer asynchronously and synchronously. The school also has to extend additional effort to get manipulatives and textbooks to parents. Currently, the school has a delivery and drop off system). As with all HyFlex modalities, if student devices or internet does not work in a particular neighborhood or at the school, there is a pause in instruction. The district also spends time thinking about contractual issues for teachers and infrastructure issues. The current HyFlex school in this district has dedicated technology and library staff to support the HyFlex model, but this does involve funding.

The district representative at this HyFlex school states that creating a specific HyFlex classroom culture is essential. He feels strongly that things can't stay the same. Our workplaces our HyFlex, and our life is HyFlex. Kids are wired differently now and understand what it means to be digital citizens. Teachers need to embrace change and be able to think outside the box. There also needs to be more educator preparation on how to teach HyFlex. HyFlex was suggested as a great model for rural areas. Additionally, more research on how to pitch this idea to districts is much needed. A question to consider: How do you bring needed change to a district slowly and with great care?

The second school profiled is a second-grade classroom at a HyFlex Elementary School in the United States. At this school, districts created their own remote video/audio system to allow teachers and students to effectively see and hear each other during the school day. At this school, HyFlex was chosen to create choice and opportunity for students post pandemic. This elementary school also worked diligently to create an environment for equitable online and in person instruction.

In terms of benefits of this model to students, students were able to continue to learn at home just as if they were in the classroom. Students also have lots of teacher support so that they don't have to rely so much on parental support. Teachers have created an equitable HyFlex environment where there is the same level of instruction and learning/curriculum outcomes. The HyFlex option at this school allowed teachers to think and plan in new, innovative ways.

Challenges centered on teacher and student adaptation to new technology, which would be stressful. There were also some students who did not want to be on camera, which causes an additional instructional challenge. The teachers needed to work on engagement with younger students. And, as we have heard prior, internet connection at school and at student's homes must be working and consistent for HyFlex teaching and learning to be successful.

At this particular district, much time and effort were spent on being a leader in both online and in- person instructional practices. As with the first district profiled, this district also

spent a significant amount of time and money on technology and infrastructure. They wanted to keep students and parents connected to the school, even in a HyFlex setting. Student and parent happiness was of utmost importance. Another highlight of the model is that the district's Director of Professional Learning is fully involved in the process, and there is a collective commitment between teachers and building leaders to uphold and support this model.

These preliminary findings from two district models indicate that the HyFlex model positively influences attendance and engagement, particularly in higher grade levels. Effective modalities identified include a combination of synchronous and asynchronous learning activities, with an emphasis on interactive and project-based learning. Retention rates also show improvement, suggesting that the HyFlex approach in K-12 schools supports long-term student success and school sustainability.

These pilot projects provide valuable insights into the implementation and impact of HyFlex education in K-12 schools. By understanding the key factors that contribute to the success of HyFlex models, educators and policymakers can better support the development of resilient and adaptable educational systems.

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HyFlex Programming as a Delivery Approach for Changing Student Demographics and Demands

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Keywords:

Student Demographics, Educational Approaches, Flexibility

Abstract:

At Southeast Missouri State University, we explored HyFlex class delivery during COVID-19. Beyond HyFlex classes, two program leaders with unique student populations are now exploring and implementing HyFlex programming. We will share how Southeast came to adopt HyFlex, and how these two programs are using it to meet the needs of their diverse student groups.

Objectives of the Presentation:

The objective of this session is to share lessons learned about our experience adopting HyFlex courses and programs at a regional public comprehensive institution. Incorporating the four value principles of HyFlex, we will discuss how two programs have evolved from HyFlex class delivery to HyFlex program delivery. We will share the challenges and opportunities we have experienced during HyFlex adoption, specifically highlighting the benefit of the HyFlex modality for bringing diverse student populations together in a dynamic learning environment. The goal of sharing our story is to open dialogue and learn from others. Participants will be encouraged to share their experiences with HyFlex and upon completing the session, will have ideas of how to implement HyFlex programming at their institutions.

Relevance to the Conference Theme and Significance to the Field:

This presentation directly aligns with the conference theme of designing a hybrid-flexible future for all students by specifically focusing on the flexibility needed for varied populations in higher education. By examining the experiences of two faculty who are developing HyFlex programs in coordination with the online learning staff, we demonstrate how we are working together to improve access to high-quality and equitable learning through HyFlex learning design and delivery, which is the essence of the HyFlex

collaborative community. Learner Choice, Equivalency, Reusability, and Accessibility will all be addressed during this session.

Upon attending the conference presentation, participants will:
Distinguish characteristics of HyFlex program delivery (vs. HyFlex course delivery)

Identify student populations that may benefit from HyFlex program delivery.

- Discuss the value of utilizing HyFlex program delivery.
- Determine if HyFlex delivery could be useful for your institution or program.
- List several key considerations when adopting HyFlex.
- Compare and contrast the utility of different teaching techniques in HyFlex learning environments with varied student demographics.

Conference Proposal Summary:
The pandemic pivot to online learning has been referred to as "panic-gogy" (Kamenetz, 2020) but now that higher education is settling into the new normal, we can be more intentional about the technological innovations we want to continue to incorporate. In HyFlex courses, students can choose to attend classes synchronously in person, via video conference, or complete their classwork asynchronously online. Each course is crafted to allow students the flexibility to decide, from one class session to the next, how they will engage with their classmates and instructor. While some heralded the importance of getting "back to normal" as COVID-19 restrictions eased, some program leaders and instructors reflected on the opportunities the HyFlex model could offer and found compelling reasons to continue to utilize this modality. The HyFlex learning environment afforded an inclusive space for students to access learning in a way most suited to their needs. This type of course environment can serve a variety of student populations and help institutions meet the need of a diverse and changing student demographic (McNeely & Sumner, 2023).

Beyond HyFlex course delivery, two program leaders at Southeast Missouri State University, a regional public institution, with unique student populations have explored and are implementing HyFlex programming. Through the lens of these two graduate programs, we will share the evolution of Hyflex at Southeast and discuss how we came to adapt HyFlex programming to meet learner demand. Presenters will explore the student populations in these two programs: full-time professionals who attend classes both in-person and virtually, international students who always participate in on-campus course sessions, students who take part in synchronous classes exclusively via Zoom, and others, who live across the US and the world, who only interact with their classmates asynchronously. This presentation will offer "lessons learned" regarding course design, teaching approaches, and technology in the HyFlex classroom.

We have learned the burden on faculty delivering HyFlex is high. Instructors need to receive adequate training and resources, as well as use appropriate teaching and learning approaches to streamline delivery and course activities. However, the return on investment can be worth it, especially when the student demographic lends itself to a HyFlex

environment. For example, one of the session presenters found that student athletes in her courses appreciated the flexibility to travel for competition. Being able to attend via Zoom or asynchronously helped these students stay on track rather than missing class. Further, we have learned that HyFlex models are particularly well-suited to meeting the needs of graduate students who may be balancing full-time professional responsibilities and academic study. Many of the aforementioned presenter's students were already employed full-time in student affairs and travel frequently for recruitment events or other work-related business. For institutions, HyFlex programs can broaden the pool of potential students exponentially, including not only students in the immediate geographic region who are not always able to attend on-campus courses, but also students from across the US and around the world. Through HyFlex programs, institutions can recruit and retain a diverse student population, bringing together students who would otherwise never have the opportunity to work together.

Addressing each of the HyFlex principles, we will share how HyFlex delivery has helped us to expand access to non-traditional students, growing enrollments while retaining students to graduation. Attendees will be encouraged to share their experiences implementing HyFlex and will leave the sessions with ideas regarding this model at their own institutions.

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Supporting HyFlex Course Design with Generative AI Assistants HyFlex Collaborative Conference 2025

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Abstract:

Effective HyFlex course design requires thoughtful planning across multiple dimensions, including strategic goals, content development, assessment strategies, student engagement, implementation logistics, and evaluation practices. This paper explores the integration of Generative AI (GenAI) assistants—specifically custom GPTs—into the HyFlex course design process. Drawing on experiences from prior HyFlex implementations and research, I describe a suite of AI-powered GPTs developed to guide educators and instructional designers through each phase of HyFlex planning. The paper outlines the benefits and potential challenges of using AI tools to support HyFlex course development, drawing on examples from the author's own teaching and faculty support work.

A Possible Scenario? Navigating the HyFlex Challenge

Dr. Martinez, a dedicated instructor at a mid-sized public university, has been teaching face-to-face courses for years. This year, her department has asked her to design her first HyFlex course which is a format she's unfamiliar with. She feels overwhelmed by the need to create engaging learning experiences that are equivalent across in-person, synchronous online, and asynchronous online modes. She worries about fair assessments, meaningful engagement, and the technological hurdles of teaching in multiple modes simultaneously. Dr. Martinez is looking for guidance and support but is unsure where to begin. She fears that any mistake could negatively impact her students' learning outcomes. This scenario is common among faculty transitioning to HyFlex teaching, highlighting the need for accessible, structured support.

Introduction

HyFlex course design aims to provide students with equitable learning experiences across in-person, synchronous online, and asynchronous online modes. (Beatty 2019a) Achieving this goal requires thoughtful planning and design to support student learning and engagement in all modalities (Mollick & Mollick, 2020). Over the past few years, I have developed and refined a suite of custom GPTs to assist educators in navigating the complexities of HyFlex course design and implementation. This paper outlines the development and application of these AI-powered tools and shares lessons learned from integrating them into my own HyFlex teaching practice.

The Power and Limitations of Generative AI in Teaching Design

Generative AI, especially large language models like GPTs, has emerged as a powerful tool to support instructional design by generating ideas, providing examples, drafting text, and suggesting instructional strategies. These tools can dramatically accelerate the design process, inspire new approaches, and reduce the burden of creating multiple versions of course materials tailored to different learning modes.

However, while GenAI excels at providing creative input, structured guidance, and even simulated dialogues, it has limitations. Designers and teachers should rely on GenAI to:

Generate draft versions of instructional materials, prompts, or outlines.
Suggest pedagogical strategies aligned with HyFlex principles.
Provide examples of content adaptation across different modalities.
Guide reflection and offer structured frameworks for planning.

However, designers and teachers should NOT rely on GenAI for:

Making final pedagogical decisions, especially those that require deep knowledge of student context and course goals.
Designing activities that depend on human judgment, such as grading or evaluating student performance.
Ensuring that accessibility and inclusivity considerations are fully met.
Making ethical decisions about course policy and student interaction.

In short, GenAI should be used as a co-designer, a creative assistant rather than the final authority. (McInnes 2023; Ravi, et.al. n.d.) Educators and designers remain responsible for ensuring that AI generated materials align with their teaching values, course objectives, and the needs of their learners.

Planning for HyFlex Course Design

A successful HyFlex course involves strategic decision-making in several areas. Drawing on the recommended design approach described by Beatty (2019b), which includes assessing opportunities and challenges, defining learning outcomes, planning learning activities, preparing assessments, and evaluating the return on expectations, this section highlights key stages in effective HyFlex design. This systematic approach helps instructors create inclusive, flexible learning experiences that align with institutional goals and student needs.

Strategic Planning: In this stage, instructors define the “why” of their HyFlex course— identifying goals, clarifying expected outcomes, and aligning with institutional priorities. This helps build a solid foundation and fosters buy-in from all stakeholders.
Content Development: Educators plan and develop content resources and interaction pathways that align with the intended learning outcomes, ensuring accessibility and flexibility across participation modes. This includes adapting content and activities for in-person, synchronous, and asynchronous learners.

Assessment Planning: Faculty create fair and effective assessment strategies that measure learning consistently across modalities. This involves adapting tests, quizzes, projects, and authentic assessments to maintain integrity and relevance regardless of how students participate.
Engagement Planning: Instructors design strategies to foster student engagement in all modes, including collaborative activities, discussions, and peer interactions that build community and support learning. This step ensures that all students, regardless of participation mode, have equitable opportunities for meaningful interaction.
Implementation Planning: This stage addresses the logistical and technical elements needed for HyFlex success—LMS integration, classroom technology, scheduling, and faculty training. It ensures the learning environment is ready to support multiple modes of participation seamlessly.
Evaluation Planning: Educators develop plans for ongoing evaluation and improvement of the HyFlex course, including methods to collect feedback and data, analyze outcomes, and make adjustments to enhance learning effectiveness and student satisfaction.

Generative AI assistants, designed as GPTs within OpenAI's ChatGPT platform, offer structured guidance, prompts, and examples to support educators in each of these areas.

AI-Powered GPT Suite for HyFlex Planning

A successful HyFlex course requires careful planning across multiple dimensions, each with its own unique challenges. The AI-powered GPT suite I developed includes six specialized GPTs, each aligned to a key phase of the design process. Below, I describe the purpose of each phase, explain why it's important in HyFlex design, and discuss why a custom GPT provides targeted, effective support beyond general AI interactions.

HyFlex Strategy Planning

Is this really important? Setting clear goals and aligning them with institutional priorities is essential to ensure your HyFlex course is both feasible and effective. A strategic plan helps define the scope of the course and guides decisions in all subsequent phases.

How can a GPT assist?

A custom GPT can walk educators through a structured planning process—posing targeted questions, offering examples, and prompting reflection—ensuring that strategic planning is comprehensive and aligned with HyFlex principles.

[Link: https://chatgpt.com/g/g-67eaf21ef9448191a084ceed0dad17e1-hyflex-strategy-planning] HyFlex Content Planning.

Is this really important? Developing content that works across in-person, synchronous, and asynchronous modes requires intentional design. Educators must ensure materials are accessible, engaging, and adaptable to different learning contexts.

How can a GPT assist? A custom GPT offers step-by-step guidance on structuring lessons, integrating multimedia, and ensuring accessibility. It reduces the cognitive load for educators, who might otherwise have to navigate these complexities alone, by providing relevant examples and prompts tailored to HyFlex design.

[Link: https://chatgpt.com/g/g-67eaf5fde70c81918d5f00fc74c6d3f5-hyflex-content-planning]

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HyFlex Assessment Planning

Is this really important? Equitable assessment in HyFlex courses ensures all students are evaluated fairly, regardless of participation mode. Educators must design assessments that uphold academic integrity and align with learning outcomes across modalities.

How can a GPT assist? A custom GPT can guide educators through the creation of assessments that are both fair and adaptable. It can provide examples, highlight potential challenges with academic integrity, and suggest solutions that align with HyFlex principles—saving time and improving the quality of assessments.

[Link: https://chatgpt.com/g/g-67eaf88f37dc8191a7d3cf35366aa3dc-hyflex-planning-for-assessment] HyFlex Planning for Engagement.

Is this really important? Student engagement is a key predictor of learning success, and in HyFlex courses, maintaining engagement across all modes is particularly challenging. Educators must create opportunities for collaboration and interaction that foster a sense of community.

How can a GPT assist? A custom GPT can suggest interactive activities, peer-learning strategies, and community-building exercises tailored to different participation modes. Unlike generic AI chats, a custom GPT is pre-programmed with prompts and examples specific to HyFlex, helping educators develop engagement plans that are both inclusive and sustainable.

[Link: https://chatgpt.com/g/g-67eafc17492c81919d7195216006c62a-hyflex-planning-for-engagement] HyFlex Planning for Implementation.

Is this really important? Even the best-designed course can falter if the institution lacks the technical infrastructure, faculty support, or student readiness required for HyFlex learning. Implementation planning ensures that these logistical and institutional barriers are addressed.

How can a GPT assist? A custom GPT can guide educators through the key considerations for implementation, including AV requirements, LMS setup, training needs, and student onboarding. This structured guidance helps educators identify potential pitfalls early and develop contingency plans.

[Link: https://chatgpt.com/g/g-67eaff624230819195707b5c7fa0722a-hyflex-planning-for-implementation] HyFlex Planning for Impact Evaluation.

Is this really important? Ongoing evaluation ensures that the course meets its goals and offers high-quality learning experiences to all students. It also provides a framework for continuous improvement, which is essential in a dynamic educational environment.

How can a GPT assist? A custom GPT can assist educators in designing evaluation frameworks, developing data collection plans, and analyzing results. It can prompt reflection on which metrics matter most and help align evaluation with the goals established in the strategic planning phase. This level of tailored support is far more efficient and targeted than ad hoc AI conversations.

[Link: https://chatgpt.com/g/g-67eb031b8ba88191bf5d2b4952c00b1c-hyflex-planning-for-impact evaluation].

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Custom GPTs Help Common Challenging HyFlex Design Situations

While the AI-powered GPT suite offers structured support throughout the HyFlex design process, educators (faculty and ID support) often encounter common and significant challenges as they plan and implement their courses. These challenges can make or break the success of a HyFlex offering, particularly for faculty members and instructional designers who are new to this teaching model. By linking the design stages outlined in this paper to these frequent pain points, educators can see where these custom GPTs may offer meaningful guidance. In this section, I illustrate ten of the most pressing challenges faced by HyFlex designers and faculty, showing how each GPT can help navigate complexities and support effective, engaging learning experiences. These challenges are not overly complex as is, but they often arise alongside other challenges, creating a combination that can end up being very complex and difficult to manage.

Developing Equitable Assessments Across All Modes

Faculty struggle to design assessments that fairly measure learning outcomes for in-person, synchronous online, and asynchronous students. Often, assessments that work well in one mode can be unfair or inaccessible in others. Faculty also face challenges ensuring consistent academic integrity across modes and balancing different types of assessments to accommodate all learners. The HyFlex Assessment Planning GPT guides educators through assessment strategies that ensure fairness, integrity, and consistency across modalities.

Aligning Course Content with Multiple Participation Modes

An instructor needs to adapt their lesson plans for students who attend in person and those who attend asynchronously. Many struggles with transforming interactive lectures into engaging asynchronous experiences. Adapting content while maintaining course coherence can be overwhelming, especially for new instructors unfamiliar with digital pedagogies. The HyFlex Content Planning GPT suggests methods for content structuring, multimedia integration, and accessibility to support all students effectively.

Designing Interactive Activities that Engage Asynchronous Learners

A course designer wants to replicate the benefits of live discussion groups for students who can't attend live sessions. Often, asynchronous learners feel isolated and disengaged without real-time interactions. It can be difficult to simulate the social presence and spontaneity of live group discussions. The HyFlex Planning for Engagement GPT offers ideas for peer learning, simulated discussions, and asynchronous collaborative activities.

Ensuring Accessibility and Universal Design

Faculty are unsure how to create course materials that are accessible to all learners, including those with disabilities. Adapting materials to comply with accessibility standards while preserving instructional quality can be complex and time-consuming. Many educators also lack formal training in universal design principles. The HyFlex Content Planning GPT can guide educators through best practices in accessibility, helping them ensure that all learners can fully participate.

Gaining Institutional Buy-In and Support

A department seeks to scale HyFlex offerings but faces administrative skepticism. Administrators may have concerns about costs, technical infrastructure, and perceived learning outcomes. Faculty need to present a compelling case that aligns with institutional priorities and demonstrates clear value. The HyFlex

Strategy Planning GPT assists educators in aligning course goals with institutional priorities, providing a structured case for adoption.

Facilitating Cross-Modal Collaboration

Faculty want to design group projects that connect students from different participation modes. Coordinating group work can be challenging when students have conflicting schedules and different levels of engagement. Ensuring that collaboration is equitable and meaningful is a frequent design hurdle. The HyFlex Planning for Engagement GPT suggests collaborative tools and structures that foster interaction across modalities.

Managing Technology Integration

An instructor is overwhelmed by the technical requirements of a HyFlex course, including LMS use, video conferencing, and digital tools. Integrating these tools in a user-friendly way requires time, expertise, and institutional support. Faculty may also worry about

troubleshooting technology issues during class sessions. The HyFlex Planning for Implementation GPT guides educators through technology planning, helping them prioritize and integrate essential tools effectively.

Evaluating Course Effectiveness and Learning Outcomes

An instructional designer needs to demonstrate that HyFlex courses meet learning goals and improve student outcomes. Gathering reliable data can be difficult across different participation modes. Educators often feel uncertain about which metrics to prioritize and how to interpret findings meaningfully. The HyFlex Planning for Impact Evaluation GPT offers frameworks for collecting and analyzing data, supporting evidence-based course improvements.

Supporting New Faculty Transitioning to HyFlex

A new instructor is designing their first HyFlex course and feels overwhelmed by the complexity. Balancing design, technology, and pedagogy while learning new teaching approaches can be daunting. Many new faculty members need step-by-step guidance to build confidence and competence. The entire GPT suite can scaffold planning, with the HyFlex Strategy Planning GPT offering an entry point and the others guiding each design phase.

Integrating AI-Enhanced Learning Tools Responsibly

Faculty are eager to incorporate AI tools but worry about ethical and pedagogical implications. Concerns include student data privacy, bias in AI responses, and ensuring that AI use aligns with learning goals. Educators need support to integrate these tools thoughtfully and responsibly. The HyFlex Strategy Planning and Engagement GPTs can guide educators in identifying appropriate uses of AI in teaching while addressing potential challenges.

Revisiting Possible Solutions: Dr. Martinez Reflects on the Power of GPTs

Three months after being introduced to the suite of custom GPTs, Dr. Martinez reflects on her journey. Initially overwhelmed, she began using the HyFlex Strategy Planning GPT to clarify her course goals and align them with her department's objectives. She then leveraged the Content Planning GPT to restructure her lectures into modules that worked across participation modes. Using the Assessment Planning GPT, she designed assessments that her students praised for their fairness and clarity. Her confidence grew as she saw her students engage deeply, regardless of how they attended class. Dr. Martinez now shares her

positive experiences with colleagues, emphasizing how the GPT suite made her transition to HyFlex teaching smoother and more effective. She often recounts how the Content Planning GPT helped her create learning modules that resonated with all her students and gave them a sense of belonging. She also highlights how the Engagement Planning GPT provided her with creative strategies to connect students across modalities, fostering a strong sense of community.

Conclusion

Generative AI has the potential to transform HyFlex course design by supporting educators throughout the planning and implementation process. While AI cannot replace the human touch essential to teaching and learning, its role as a design partner and interactive learning assistant can help make HyFlex courses more engaging and effective.

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Supporting HyFlex Learning Communities with AI: Preliminary Findings from our International Erasmus+ Project

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Abstract:

The implementation of Hybrid-Flex (HyFlex) learning models presents significant opportunities and challenges for higher education institutions. This paper outlines the preliminary findings from the Erasmus+ project "HyComm" (Hybrid Flex Learning Community for Higher Education Teachers), an international collaboration between three major universities and two technology partners. Drawing on thematic analysis of focus group discussions with academics from diverse institutional contexts in Norway, Spain, and Turkey, we explore how faculty conceptualize flexibility, perceive its benefits and challenges, and view the integration of Artificial Intelligence (AI). The results reveal a variety of understandings of flexibility, significant concerns regarding workload, student readiness, and institutional barriers, and a cautious optimism about AI's role in facilitating content generation, accessibility, and management tasks. These findings directly inform the development of an AI-enriched training module and collaborative hub designed to build institutional capacity and educator competence in HyFlex design and delivery.

Introduction

HyFlex course design aims to provide equitable learning experiences across multiple participation modes (Beatty, 2019). However, its successful implementation requires not only pedagogical skill but also institutional support and technological infrastructure. The HyComm project addresses these needs through a strategic international partnership. This paper shares the preliminary analysis of focus group data collected from academics at the partner universities, detailing their perceptions, challenges, and expectations regarding

flexibility and AI in education. These insights are foundational to the project goal of developing an AI-enriched training module and a collaborative hub to support teachers.

HyFlex Collaborative Conference 2025

The HyComm Project: Mission and Structure

HyComm (Hybrid-Flex Learning Community for Higher Education Teachers) is an Erasmus+ project involving three major universities from Spain, Turkey, and Norway, collaborating with two technology institutions from Turkey and Belgium. The mission is to enhance the HyFlex design and delivery skills of higher education teachers and to build the institutional capacity of universities for digital transformation by enabling them to trial flexible course delivery models.

The project outputs are structured around three core pillars:

AI-Enriched Training Module: The development of nine interactive modules to equip teachers with the methodologies and tools needed for effective HyFlex teaching, emphasizing learning-by-doing.
HyComm Lab: An innovative online collaborative platform serving as a central hub for interaction, resource sharing, and community learning.
HyFlex Community: Fostering a sustainable community of practice where teachers from different institutions can support each other in developing and refining HyFlex teaching practices.

Preliminary Analysis: Faculty Perceptions of Flexibility

To inform the development of these outputs, focus group discussions were conducted with academics across the three partner universities. A thematic analysis of this data revealed key insights into how flexibility is conceptualized, practiced, and challenged in diverse institutional settings.

Conceptualizing Flexibility: Understanding varied significantly across and within institutions. The University of Bergen (Norway) often defined flexibility as combining synchronous and asynchronous learning. A university in Turkey emphasized adapting to student needs, while the Autonomous University of Barcelona (Spain) discussed negotiation, particularly in addressing special needs and disabilities and creating flexible assessment practices. Other common themes included offering different learning pathways, allowing students to work at their own pace, and the instructional adaptation of pedagogical methods to individual needs. Beyond the initial definitions, our in-depth analysis reveals that flexibility is often reduced to partial perspectives: some faculty maintain a vaguely optimistic view of digitalization's potential, while others primarily associate it with reasonable accommodations for students with special needs. Although valuable in specific contexts, these approaches are problematic because they fail to clearly articulate the integration of technological, pedagogical, and content knowledge, thereby

weakening institutional capacity to fully realize the potential of hybrid and flexible learning.

Perceived Benefits: Faculty identified several advantages to flexible models. Primarily, they noted that flexibility offers students greater control and autonomy over their learning process (when, how, and where to learn). Other benefits included improved accessibility to materials, the ability to offer multiple learning formats and multimodal resources, and the potential for enabling interdisciplinary collaboration and access to guest lectures. Additional findings suggest that while benefits are widely acknowledged, faculty often frame them in terms of individual adaptation rather than systemic transformation. This highlights the need for clearer institutional strategies that go beyond ad-hoc solutions and align flexibility with broader pedagogical and policy frameworks.

Identifying Challenges and Institutional Barriers

A deeper layer of analysis also uncovered how emergency experiences such as pandemic lockdowns or natural disasters exacerbated fatigue and skepticism. Teachers reported feeling overwhelmed by constantly shifting expectations, which has shaped cautious or even resistant attitudes toward long-term adoption of hybrid and flexible methods.

The focus groups also reflected on significant challenges that hinder effective HyFlex implementation:

Student Engagement & Readiness: A common concern was a decline in active participation, particularly in online settings. Faculty reported that students often prefer watching recorded lectures passively. A related challenge is that students may not be ready for the self-regulation required in flexible environments, needing more structure and clear deadlines to avoid feeling overwhelmed or lost.
Faculty Workload: The additional preparation time and intensity required to develop and manage course materials for multiple modalities was a major hurdle cited by academics at all institutions.
Technological & Literacy Gaps: Barriers included a lack of fully functioning technological tools and gaps in digital literacy among both students and staff. This was noted as an issue even in contexts with high technological preparedness, indicating a need for training beyond mere resource provision.
Institutional Constraints: Rigid institutional policies, such as mandatory attendance requirements and standardized assessments, were identified as key constraints. Participants universally called for more systemic institutional support, investment in technological infrastructure, and dedicated faculty training to enable successful flexible learning models.

Ethical Considerations and the Role of AI

Faculty expressed important ethical concerns regarding HyFlex learning:

Equity and Access: Ensuring flexible models do not unintentionally exclude students from disadvantaged backgrounds who may lack adequate technology or internet access.
Social Impact: Mitigating the reduced sense of community and social interaction that can result from online or hybrid participation.
Academic Integrity: Concerns were raised about students' ethical use of AI for completing assignments and its potential impact on critical thinking and learning.

Regarding AI integration, faculty showed cautious optimism. They suggested AI could be a valuable facilitator by:

Creating personalized learning experiences and providing adaptive feedback.
Automating repetitive tasks like grading to manage workload.
Enhancing accessibility through features like text-to-speech, speech-to-text, and translation.

However, concerns persisted about student over-reliance on AI and ensuring fairness and equitable access to AI tools.

Conclusion and Future Directions: Informing the HyComm Training

The discussions highlighted contextual and emotional factors that strongly condition the adoption of these methodologies. Fatigue stemming from emergency remote teaching, together with the perception of 'exceptions' that disrupt established norms (e.g., absenteeism reframed as flexibility), have generated skepticism among some faculty. Participants also raised concerns about uncritical technological dependence and the environmental and labor implications of large-scale AI adoption. These reflections reinforce the idea that debates on flexibility cannot be limited to pedagogical efficiency but must also incorporate broader ethical, social, and institutional considerations.

The preliminary findings from the HyComm focus groups paint a complex picture of HyFlex readiness. While faculty recognize the benefits of flexibility for student autonomy and access, they face profound challenges related to workload, student engagement, institutional policies, and ethical dilemmas. These insights are directly shaping the development of the HyComm project's outputs. The requested training topics, such as building a virtual community, clarifying HyFlex terminology, providing practical and adaptable tools, and guiding the ethical use of AI for workload management and student engagement, are being integrated into the AI enriched training modules and the design of the HyComm Lab hub. The HyComm project aims to empower faculty and institutions to navigate the complexities of HyFlex design and foster a supportive community ready to integrate AI as a responsible partner in building more accessible, engaging, and flexible learning environments.

More specifically in practice, the focus group findings directly informed the HyComm course design by shaping both the content and structure of the modules in the draft document. For example, faculty concerns about differing understandings of flexibility and institutional

constraints are reflected in the introductory What and Why HyFlex? module, which clarifies definitions, benefits, and challenges, while also addressing soft skills such as adaptability and inclusive teaching that were highlighted as essential. The reported workload and engagement challenges informed the emphasis on AI integration, with modules such as Using AI for Facilitating HyFlex Learning and Delivery of HyFlex Learning with AI designed to show how AI can reduce repetitive tasks, support feedback, and help sustain student engagement across modalities. The ethical concerns raised in the focus groups are echoed in the training content that emphasizes responsible and critical AI use, ensuring equitable access and fair practices. Similarly, the calls for institutional and technological support are embedded in modules like Designing HyFlex Learning Scenarios and Developing Learning Resources, which guide teachers in aligning learning outcomes, assessments, and infrastructure to support flexible delivery. Finally, the focus on evaluation, as requested by participants, is integrated into the Evaluating HyFlex Learning module, which stresses data-informed improvement and AI powered analytics to measure student satisfaction, engagement, and learning outcomes. In this way, the findings served as both a foundation and a blueprint for the course design and ensured that the training responds directly to the needs, concerns, and aspirations expressed by the participating faculty.

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The Same Thing . . . Only Different: Implementing Change Management Strategies to Launch and Sustain HyFlex Delivery

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Abstract:

This paper demonstrates how the same effective change management practices used for previous initiatives can be repeated with equal success in new initiatives. Drawing on Fairmont State University's success at rolling out other initiatives and technologies, campus leaders used their proven change management strategies to launch and sustain HyFlex course redesign and delivery. Some of those strategies included using effective cross-functional collaboration, strategic time-management, open and ongoing communication, initial and continuous training, smart resource allocation, and buy-in from stakeholders.

Based on the work of Beatty (2019), and through funding from a Title III grant, a HyFlex course redesign and delivery process was launched at a regional comprehensive public institution of higher education to help provide flexibility and options for its students. With anticipated declines in both national and global student enrollment (Esaki-Smith, 2024), the institution sought ways to change the trajectory. Its student population consists of many first-generation and undeserved students; many have work and other obligations outside of those related to their education. These challenges present risks to student success in a variety of ways including degree completion.

In response to some of these challenges, University leadership implemented various strategies to circumvent the anticipated drop in student enrollment. One such strategy is embracing HyFlex as a way to provide greater flexibility and choice to students and to help non-completers finish the education they started.

A reported 69% of students want more flexibility for attending class and completing coursework (Barnes & Noble College, 2021). Although online and hybrid offerings were already in place at the institution, University leadership opted to provide even greater flexibility and choice by offering HyFlex options. HyFlex was proposed to help improve retention and graduate rates (Schunn & Patchan, 2009) and to improve student success (Paolini, 2015). The University submitted a proposal to the U.S. Department of Education and was awarded a 5-year Title III grant (PR/Award #P031A230090) in 2023, funded at over 2.2 million dollars, to support student success in different areas. One area is Connecting Classrooms, which supports launching and sustaining HyFlex course redesign and delivery to help with retention, degree completion, and student success.

Drawing on the University's success at rolling out other initiatives and technologies, campus leaders used its proven change management strategies to launch and sustain HyFlex course redesign and delivery. Some of those strategies included using effective cross-functional collaboration, strategic time-management, open and ongoing communication, initial and continuous training, smart resource allocation, and buy-in from stakeholders.

Change management has become a part of the institution's culture and leadership is leveraging this with the HyFlex initiative. In October 2025 the Title III grant will begin Year 3 of 5. At that time at least 23 faculty will have been trained through EDUCAUSE and/or internally in HyFlex course redesign and six fully equipped HyFlex classrooms will have been installed across campus with availability to every campus college. Further, 11 HyFlex courses will have been or will be in the process of being taught. This early success is gaining momentum and is poised to provide HyFlex delivery options to students for years to come. While the HyFlex initiative is still a work in progress, its proven change management strategies can be considered for other institutions that are developing an institutional framework for adopting HyFlex as a course delivery option for their student population.

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