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Having a 'Chat' about Hybrid and HyFlex

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Abstract

This paper offers a reflective narrative detailing the utilisation of generative artificial intelligence (GenAI), with a focus on ChatGPT 3.5, HIX.AI, and Perplexity, in the construction of a concise report on Hybrid and HyFlex teaching models. The writing approach encompassed the formulation of prompts directed at GenAI, tackling issues related to naming conventions, student implications, and strategies for effective teaching in Hybrid and HyFlex settings. Following the presentation of the report produced by GenAI, the paper culminates in a critical reflection on the overall writing process involving GenAI and considers the possible implications. The overall sense from this exercise is that free versions of GenAI can produce a reasonably competent and articulate piece of work but only with time, patience and an existing prior knowledge base that enables the 'author' to be able to evaluate and interact with the AI output.

1. Introduction

1.1 Prior Experience and Use of GenAI

While I was aware of AI in its various forms for a number of years, for me and many others, I suspect, the arrival of ChatGPT in late 2022 proved to be a genuine game changer in terms of raising my awareness and subsequent level of use. I was aware that there were accusations of bias in terms of the algorithms and the limitations in terms of incomplete information, most notably that it did not have access to real-time information that stopped in September 2021. Prior to this exercise, I had only used ChatGPT-3 and latterly version 3.5.

1.2 Rationale

In terms of selecting the topic for this paper, I was drawn to the subject of Hybrid and HyFlex teaching and learning both in terms of issues around (1) the clarity of understanding of the two terms and (2) the pedagogical and technical considerations for teaching in a Hybrid mode. The primary reason for this choice is that this was the subject matter for my research project when undertaking an MA in E-Learning Design and Development in 2021-2022 and drawing on my experience of working as a digital learning support officer in a large university. As such, I felt confident that I had the knowledge to be able to evaluate the efficacy, accuracy and appropriateness of the AI outputs.

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Based on the insights from my work experience and my previous research I was aware that there appears to be a degree of confusion as to what exactly constitutes Hybrid, blended and HyFlex learning. This search for clarity is not simply an exercise in semantics about naming conventions. Howell (2020 p.63) concludes that "names matter, particularly in emerging or evolving teaching contexts where teachers, students, and researchers are in the process of defining and refining the multiple subjectivities actors may occupy". Saichaie's (2020) comprehensive analysis of the naming conventions associated with technology-enhanced learning found that the terms blended, flipped and Hybrid were in many instances used interchangeably. This has resulted in varying degrees of confusion and differential expectations on the part of the teaching staff, institutional management, and students (Raes, 2020). What characterises Hybrid teaching is that the learning space consists of two synchronous modes with students able to attend either on-campus or online in a synchronous environment (Irvine, 2020; Lamb et al. 2021). Because of my familiarity with the topic, I was interested to see if AI had a grasp on the nuances of the debate and the ensuing implications for digital education practice.

1.3 The Writing Process

Following on from my own master's research, I wanted AI to write a short report about naming conventions and the issues associated with confusion between Hybrid, blended and HyFlex modes followed by a practice-based focus second half that offers advice to teaching staff using a Hybrid and/or HyFlex approach. However, rather than set the AI one overarching prompt whereby I was asking it to write a 2,000-3,000-word complete paper, I used GenAI by posing a series of questions ranging from issues about naming conventions to asking for advice on how to lecture in a Hybrid/HyFlex mode. Thus, the prompts used were:

- 1. What are the differences between Hybrid and HyFlex teaching?
- 2. The Terms, Hybrid, Blended and HyFlex often get used interchangeably and incorrectly. Discuss.
- 3. What are the implications for higher education students if institutional management lacks clarity regarding naming conventions for the use of Hybrid and HyFlex?
- 4. Discuss the implications for higher education students if institutional management lacks clarity regarding naming conventions for the use of Hybrid and HyFlex?
- 5. What are the principal characteristics of Hybrid and HyFlex teaching? How are they similar and how are they different? [Please provide reference sources].
- 6. What advice can you give to a lecturer who will be required to teach in a Hybrid and/or a HyFlex learning environment? [Please provide reference sources].
- 7. What student engagement tools and or software would you recommend when teaching in a Hybrid learning environment? [Please provide reference sources].
- 8. How do you ensure equivalence of experience between on-campus and remote students in a Hybrid teaching environment? [Please provide reference sources].

As can be seen from the list of prompts, numbers five to eight also included a request for references. As presented subsequently in the short report, I have indicated where a specific reference was supplied by the AI with a number from 1 to 6. Otherwise, there was a series of general references supplied but not attributed to a specific point, rather it was an attribution indication of where the general points had been drawn from.

It is important to acknowledge that the paper is not intended or presented as an exhaustive or systematic evaluation of different GenAI platforms, rather, this paper sets out to report and reflect on the issues encountered in the writing and research process. Perhaps not unsurprisingly, I started with, and primarily used ChatGPT 3.5 during the process. While being mindful of the reported limitations and bias of ChatGPT (Rawas, 2023); due to its sheer pervasiveness, it was the primary tool used in this project. However, once the initial set of responses was generated, the prompts were copied and pasted into two other generative AI tools: Perplexity (https://www.perplexity.ai/) and HIX.AI (https://hix.ai/chat).

The subsequent short report article was 'stitched' together in response to the different prompts and from the three GenAI platforms indicated. In order to enhance the transparency of the process I have provided an indicator in terms of the platform used to generate the text and what prompt it was written in response to using the letters P for Perplexity, C for ChatGPT and H for HIX; hence prompt number 3 from ChaptGPT will be indicated at the end of the relevant section as [#3C] and so on. Finally, when the main body of the report was complete, I submitted the text to ChatGPT and asked it to first write an introduction and then write a conclusion. In both instances, these were the first iterations used for the report. Finally, when I completed the short report, I again submitted it to ChatGPT and asked for a list of suggested titles, from which I selected the final title. The only author-generated text in the report is the headings that I provided in order to help with structure and presentation.

2. AI Generated Short Report

Title: Understanding the Nuances of Hybrid and HyFlex Teaching: Implications and Strategies

2.1 Introduction

Hybrid teaching and HyFlex teaching are two prominent instructional approaches that merge in-person and online learning methods. These methodologies, though bearing some similarities, also possess distinct differences. In this article, we delve into the core distinctions between Hybrid and HyFlex teaching models, explore the implications of their usage in educational contexts, and provide strategies for instructors to ensure equivalence of experience for both on-campus and remote students in a Hybrid teaching environment. The ever-evolving landscape of education demands a comprehensive understanding of these approaches to meet the diverse needs of today's students.

2.2 Hybrid and HyFlex Modes of Teaching

Hybrid teaching and HyFlex teaching are both instructional approaches that combine inperson and online learning. While there are similarities between the two, they also have distinct differences. Here are the key differences between Hybrid and HyFlex teaching:

Definition: Hybrid teaching refers to a model where students participate in both in-person and online activities at the same time. It typically involves dividing students into two groups and rotating them between physical classrooms and online learning platforms. On the other hand, HyFlex teaching stands for Hybrid-Flexible, and it offers students the flexibility to choose between attending classes in person or participating remotely, using synchronous or asynchronous learning options.

Flexibility: Hybrid teaching has preset schedules for students to alternate between physical and virtual classrooms, with a predetermined arrangement for in-person and online activities. In contrast, HyFlex teaching prioritizes student choice by offering them the flexibility to decide how they want to participate in each class session. This could include attending in person, joining remotely via video conference, or accessing class materials asynchronously.

Technology Usage: Both models rely on technology integration, but they differ in emphasis. Hybrid teaching often adopts video conferencing tools to connect remote learners with the class. However, the primary focus is on delivering synchronous instruction and maintaining simultaneous learning experiences for all students. HyFlex teaching, on the other hand, places more emphasis on leveraging technology to deliver content and engage students asynchronously, recognizing that students may have different learning preferences and time constraints.

Pedagogical Approach: In Hybrid teaching, the pedagogical approach tends to be more synchronized, with both in-person and online methods following a similar structure and pacing. The aim is to ensure consistency in content delivery and to create a cohesive learning experience for all students, regardless of their mode of participation. In HyFlex teaching, the pedagogical approach may vary depending on how students choose to participate. The instructor must design activities and assignments that allow for individual paths of exploration, fostering deeper engagement with the material [#1C].

Both approaches have similarities and differences. Here are some of the similarities and differences between Hybrid and HyFlex teaching: Similarities

- Both approaches combine face-to-face and online instruction.
- Both approaches offer students flexibility in how they participate in the course.
- Both approaches require careful planning and management to be successful.

Differences

- Hybrid courses require less technological equipment than HyFlex courses.
- In Hybrid courses, students attend classes at set times, while in HyFlex courses, students have more control over when and how they participate in the course.
- In Hybrid courses, all students undergo the same combination of online and inperson activities, while in HyFlex courses, students can choose from different participation paths [#5H].

In summary, while Hybrid teaching requires students to alternate between in-person and online learning, HyFlex teaching offers students the flexibility to choose their own learning

mode for each class session. The focus of HyFlex teaching is to provide student choice, while Hybrid teaching aims for a more synchronized learning experience [#1H].

2.3 Implications of Confusion

It is important to note that these terms are not always used consistently, and there is some overlap between them. However, understanding the differences between these terms can help educators and students choose the approach that best suits their needs. [2P]. Here's a discussion of why this happens and the distinctions between these terms: Lack of Standardized Definitions: One of the main reasons for the confusion is the absence of standardized definitions for these terms in the education field. Different institutions. educators, and researchers may interpret and use these terms differently. Evolution of Terminology: Over time, the meanings of these terms have evolved. What was once considered "blended" or "Hybrid" in the past might now align more closely with the concept of HyFlex due to advancements in technology and changing teaching methodologies. Contextual Variations: The interpretation of these terms can vary depending on the context. For example, a school or university might have its own specific definition for what constitutes a "blended" or "Hybrid" course, and this definition may differ from that of another institution. HyFlex as a Hybrid Evolution: HyFlex is a relatively newer concept compared to Hybrid and blended learning. It emerged as a response to the need for more flexibility in education, especially during situations like the COVID-19 pandemic. As a result, some educators and institutions may use "HyFlex" to describe courses that others would categorize as "Hybrid" or "blended". To mitigate confusion, it's essential for educational institutions and instructors to provide clear definitions and guidelines when using these terms. This helps ensure that students, faculty, and administrators have a common understanding of the instructional approach being employed. Additionally, as these terms continue to evolve, the education community should work toward creating more standardized definitions to reduce ambiguity and promote effective teaching and learning practices [#2C].

The lack of clarity in institutional naming conventions for the use of Hybrid and HyFlex teaching models in higher education can have several implications for students:

- Confusion and Uncertainty: Students may become confused about the format and expectations of their courses. If they don't understand whether a course labeled as "Hybrid" or "HyFlex" allows for flexibility in attendance or not, they may not be able to make informed decisions about their class schedules and study habits.
- Inconsistent Learning Experiences: Inconsistencies in how these terms are used can result in students experiencing widely varying learning environments. For example, one course labeled as "Hybrid" may have a fixed in-person schedule, while another labeled the same way may allow for flexible attendance. This can lead to unequal learning experiences.
- Difficulty in Planning: Students often need to plan their schedules around their courses, jobs, and other responsibilities. Without clear naming conventions, they may find it challenging to select courses that align with their preferred learning format, potentially causing scheduling conflicts.
- Tech Readiness and Requirements: Students attending HyFlex courses may need specific technology and software to participate online synchronously. If the labeling is unclear, students might not be adequately prepared with the required technology, leading to technical issues during class.

- Impact on Learning Outcomes: The teaching and learning strategies employed in Hybrid and HyFlex courses can be different. If students misunderstand the course format, they may not fully engage with the materials and activities designed for their chosen mode, potentially affecting their learning outcomes
- Student Satisfaction: Confusion and frustration stemming from unclear naming conventions can lead to reduced student satisfaction. Students who feel they were not adequately informed about the course format may be less satisfied with their educational experience [#4C].
- Inaccurate Expectations: Lack of clarity in naming conventions can result in students having inaccurate expectations about the structure and requirements of a course. They may enroll in a course expecting a particular instructional format, only to find out later that it differs significantly, leading to frustration and disrupted learning experiences.
- Resource Allocation Issues: Lack of clarity in naming conventions may affect resource allocation within the institution. For example, if student demand for a particular format is underestimated due to unclear naming, there is a risk of inadequate allocation of physical classroom spaces, technological resources, or faculty support for specific instructional models.
- Accessibility and Flexibility Concerns: Clear naming conventions are crucial for students who require specific accommodations or flexibility in their learning options. Lack of clarity may make it challenging for students with accessibility needs to identify the courses that meet their requirements, potentially limiting their access to suitable learning environments [#4H].

In summary, lack of clarity in institutional naming conventions for Hybrid and HyFlex courses can lead to confusion, inconsistent learning experiences, and other challenges for students. It's crucial for institutions to address this issue by providing clear information and ensuring that both faculty and students understand the meaning and expectations associated with these terms. These measures can help ensure that students make informed choices, experience equitable learning opportunities, and have a positive overall educational experience [#4C].

2.4 Mitigating for Confusion

To mitigate these implications, institutions should prioritize clear and consistent communication regarding course formats and expectations. This may include: Establishing standardized definitions and guidelines for the use of terms like "Hybrid" and "HyFlex." Providing detailed course descriptions, syllabi, and registration information. Clearly communicating any technology requirements for online participation. Offering training and support for faculty to implement teaching models effectively and consistently. Creating feedback mechanisms for students to express concerns and questions about course formats. These measures can help ensure that students make informed choices, experience equitable learning opportunities, and have a positive overall educational experience. For specific sources addressing these implications, you may refer to articles and publications on higher education practices and policies related to course design and communication #[4C].

2.5 Teaching Hybrid and HyFlex Strategies

Teaching in a Hybrid or HyFlex learning environment, where you simultaneously engage with in-person and remote students, can be a complex task. Here's some advice for a lecturer who will be required to teach in such settings:

- Understand the Differences: Differentiate between a Hybrid and HyFlex model. In a Hybrid model, students have both in-person and online components, while in a HyFlex model, students can choose their mode of participation (in-person or online) for each class session.
- Design Courses with Flexibility in Mind: When planning your courses, emphasize flexibility. This includes adaptable lesson plans, accessible materials, and versatile assessment methods that can work for both in-person and online students [#6 C].
- Make all course materials and learning experiences accessible: Instructors should ensure that all course materials and learning experiences are accessible to all students, including those with disabilities. This can be done by providing captions for videos, using accessible documents, and designing activities that are inclusive for all students. (1)
- Engage all of your students: Instructors should engage all students, regardless of their location, by using a variety of teaching methods and technologies. This can be done by using polling software, breakout rooms, and other interactive tools that encourage participation and engagement. (1)
- Familiarize yourself with the technology: Instructors should familiarize themselves with the HyFlex technology and practice using it before the start of the course. This can be done by visiting the assigned classrooms or similar rooms to practice a lecture and inviting other faculty members to a Zoom meeting while in the classroom (2)
- Establish a clear process: Instructors should establish a clear process for students who need to connect remotely. This can include providing information about how to connect to the class via Zoom, how to participate in class activities, and how to access support resources (3)
- Communicate about the HyFlex course: Instructors should communicate with their students about the HyFlex course, including how the course will be taught, what is expected of in-person and remote learners, and how technology will be used. This can be done by partnering with TAs, monitoring Zoom hand raising and the chat for any questions, and providing guidelines and norms for the HyFlex classroom (2,3,4) [#6 P].

2.6 Ensuring Equivalence

Ensuring equivalence of experience between on-campus and remote students in a Hybrid teaching environment can be challenging, but there are several strategies that can help lecturers create a flexible, accessible, and equitable learning environment for all students. Here are some ways to ensure equivalence of experience [8 P]:

• Use technology to facilitate interaction: Instructors should use technology to facilitate interaction between on-campus and remote students. This can be done by using video conferencing software, chat rooms, and other interactive tools that encourage participation and engagement. (5,6)

- Provide opportunities for collaboration: Instructors should provide opportunities for collaboration between on-campus and remote students. This can be done by using breakout rooms, group projects, and other collaborative activities that encourage students to work together. (5)
- Ensure equal access to resources: Instructors should ensure that all students have equal access to resources, including technology, course materials, and support services. This can be done by providing access to technology on campus, offering online tutoring and other support services, and providing clear instructions for accessing course materials. (7) [#8 P].
- Leverage Technology Effectively: Ensure that both on-campus and remote students have access to the necessary technology and tools. Use high-quality video conferencing, learning management systems, and other digital resources. This allows all students to access course materials and interact with instructors and peers, regardless of their location.
- Synchronous and Asynchronous Learning Options: Offer a mix of synchronous and asynchronous learning opportunities. Synchronous sessions provide real-time interaction, while asynchronous options give flexibility to remote students. This balance accommodates different learning styles and time zones.
- Recorded Lectures and Materials: Record on-campus lectures and make them available to remote students. This ensures that remote learners have access to the same content, helping to maintain consistency in the learning experience.
- Engagement Strategies for Remote Students: Implement interactive online tools, such as discussion forums, live chats, and collaborative documents, to engage remote students in active learning and discussions. Encourage active participation from both on-campus and remote students.
- Clear Communication and Support: Maintain transparent and consistent communication with all students, providing clear instructions and expectations. Offer remote students access to the same support services as oncampus students, including academic advising, counseling, and technical support.
- Flexible Assessment Methods: Create assessments that are equivalent for both groups. This may involve using alternative assessment methods, such as online exams, projects, or presentations, that work well for remote students. Ensure that assessment criteria are clear and consistent for all students.

These strategies will help you maintain a balanced and equitable learning experience for both on-campus and remote students in a Hybrid teaching environment. Regular assessment of the effectiveness of these strategies and feedback from students can further guide adjustments and improvements to ensure equivalence. By incorporating these strategies, instructors can create a more inclusive and engaging learning environment for remote students in a Hybrid or HyFlex teaching setting. [#8C].

2.7 Conclusion

In conclusion, the distinctions between Hybrid and HyFlex teaching models are crucial to understand, as they have a significant impact on the learning experiences of students in higher education. Hybrid teaching involves a predetermined combination of in-person and online activities, while HyFlex teaching empowers students to choose their mode of

participation for each class session. While the terms are sometimes used interchangeably, this lack of consistency can lead to confusion and disparities in learning experiences. The implications of unclear naming conventions for students are substantial, including confusion, inconsistent learning experiences, and difficulties in planning their academic journeys. To address these challenges, educational institutions must prioritize clear and consistent communication, standardized definitions, technology readiness, and support mechanisms. These measures will help ensure that students make informed choices, experience equitable learning opportunities, and have a positive overall educational experience.

For instructors teaching in Hybrid or HyFlex environments, adaptability, technology proficiency, and a strong commitment to engaging all students are key. Flexibility in course design and clear communication about expectations and technology requirements are essential for fostering a successful learning experience.

Ultimately, achieving equivalence of experience in a Hybrid teaching environment is an ongoing process that requires careful planning, effective technology utilization, and a commitment to promoting fairness and inclusivity in higher education. As the landscape of education continues to evolve, addressing these challenges will remain a priority for educators, institutions, and policymakers alike.

2.8 AI-Generated References

The reference list for the sources supplied by ChatGPT 3.5 and HIX.ai are reproduced as they were presented. The references in Perplexity were simply indicated as numbers in the text and web links at the bottom of the page. I have reproduced the HIX.ai references in APA style for readability.

2.8.1 Generated by ChatGPT 3.5

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2.8.2 Generated by HIX.ai

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2.8.3 Generated by Perplexity

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3. Critical Reflection

3.1 The Writing Process

Over a two-day period using different prompts and iterations I generated a total of 11,400 words to eventually produce the short report of 2,600 words long with another 300 in the reference list. This generation phase was followed by the subsequent selection and verification phases, which took place over a further four-day period. Between the two phases, I would guesstimate that the time involved in producing the short report was approximately 8-10 hours.

Because of the sequential way the prompts were used and because free versions of the platforms have less functionality, the report was, as previously stated, 'stitched' together. There was no author-generated text inserted to bridge between sections, consequently, selections of responses were made on the basis of how accurate the information in each section was, and how the quality of the writing could be used to best create a sense of flow between sections. Because of the staggered nature of writing with a series of prompts the outputs produced were perhaps a little more staccato in terms of most bullet-point narrative, frequently finished by the stock phrase 'in summary'. However, with careful and judicious selection and sequencing of the outputs, the final report is (given the required word limit) I believe, an acceptably comprehensive paper that provides a reasonably well-nuanced understanding of the topic and the associated teaching and learning issues that would provide the novice in the world of Hybrid and HyFlex teaching a useful starting point.

3.2 References & Hallucinations

One of the principal criticisms about GenAI is its reported tendency to what is often referred to as hallucinations, in other words, the tendency to produce "plausible, but false information in its output (such as fake references) and so being able to evaluate the output for its quality is a key capability in making use of AI tools" (Hillier, 2023). Therefore, in making my determinations I paid particular attention to the accuracy and appropriateness of the references supplied. However, while my previous experience of ChatGPT in the early part of 2023 did highlight examples of hallucinations, this round of searches produced very different results with the three specific references supplied (see the previously listed ChatGPT references) all proving to be factually correct and appropriate. In response to prompt #5, ChatGPT produced an equally noncommittal response, stating that "these sources provide general information about Hybrid and HyFlex teaching models. Keep in mind that the specific implementation and terminology can vary among institutions and instructors".

At the time that I used the HIX.AI platform, I was not initially aware that the text generator is essentially ChatGPT 3.5; therefore, the same issue with the provision of general references similar to the direct use of ChatGPT 3.5 was evident. In the case of the Perplexity outputs, specific references were indicated at the end of each paragraph as indicated in the short report. As such, there was greater transparency in terms of attribution in comparison to the other two platforms used in this exercise. The appropriateness of the seven references supplied by Perplexity was appropriate in terms of the correctness of the information supplied and the provenance of the authors.

3.3 Personal & Professional Reflections

As I said in section one, aside from ChatGPT I had not used GenAI to any great extent. In fact, the extent of my knowledge was illustrated when halfway through the writing phases I realised that HIX.ai has a limit in terms of free outputs, after that limit has been reached, a subscription service is required. Therein lies one of the issues regarding the different versions of GenAI, namely the digital divide now has another layer; whether one has the resources to be able to pay for subscription versions of GenAI platforms with their far higher levels of capability and functionality. For example, in arguing that AI could widen the digital divide, McKean (2023) argues that "Initial estimates by the experts at Jisc's National Centre for AI (NCAI) found that if a student were to subscribe to a full suite of popular generative AI tools and education plug-ins, it could cost them around £1,000 a year, pushing generative AI out of reach for many". Even my brief exposure to the limitations of HIX.ai illustrated very quickly to me the potential shortcomings of relying solely on free versions.

Given the rapid pace of change in one year it is almost impossible to guess where GenAI will take us and what the possible implications are for higher education. Aside from the aforementioned 'digital divide'; there appears to be another divide at work on this topic; namely, there are those who fear the 'traditional' written assessments have had their day and those who argue that teaching, learning and assessment could be largely redundant. On the other hand, there are those who welcome the opportunities presented by GenAI to be able to reimagine how higher education teaches and assesses. As someone who has been deeply involved in digital education for several years, I tend to be in the latter camp. However, as this exercise has demonstrated to me, I was only able to construct the Hybrid/HyFlex paper

on the basis of prior knowledge understanding and skills; without that knowledge and informed judgement I am quite sure that I would have had the ability to construct the finished paper. In considering the possible implications for practice, my views and reflections are based on my role in educational technology design and support rather than as a student-facing lecturer. From my perspective, GenAI presents an opportunity for streamlined content creation and enhanced personalised learning experiences, thus reshaping the instructional design process. Whether that reshaping is for better or worse? only time will tell.

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