# Investigating Student Teachers' Learning Experience and Choice of Participation Modalities in a HyFlex Course: A Mixed Methods Approach

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**Abstract:** In this paper, the authors adopted a mixed methods explanatory sequential approach to examine student teachers' satisfaction and its relationship with participation modalities in a HyFlex course. It also explored the factors behind their extent of satisfaction and choice of participation modalities. Twenty-six student teachers completed the satisfaction questionnaire, and four participants were recruited for a focus group discussion. The research findings indicated that students were very satisfied with the HyFlex course because the flexibility in attendance and the easy access to learning materials accommodated their learning needs and personal commitments; this promoted self-directed learning and reduced their academic pressure. The student teachers were also satisfied with the HyFlex course because they gained exposure to an innovative learning format. As for the factors affecting student choice of participation modalities in the HyFlex course, peer influence is one of the significant factors. Students also reported that they chose the synchronous mode based on their learning preferences and empathy towards the instructor's commitment, while they chose the online options due to their energy level, health conditions, and personal matters. Overall, this study suggests that HyFlex may be considered as a learning model that could cater to various learning needs among student teachers majoring in baccalaureate in education (physical education), and potentially enhance their learning outcomes.

**Keywords:** HyFlex, satisfaction, participation choice, student teacher, blended

## 1. Introduction

Student dropouts have become pervasive in Asia (Latif *et al.*, 2015). Since the coronavirus disease 2019 (COVID-19) outbreak, Malaysia has also been no stranger to this problem. The New Straits Times (2022) and FMT Reporters (2022) reported over 17,000 dropouts among public university students in 2021, which marked an increase of over 4,000 compared to the previous year. In contrast, more than 20,000 students postponed their studies for private institutions. During the same period, Malaysia also suffered a woeful learning loss rate of 0.95 years, one of the highest learning losses among Asian developing countries (Ferlito *et al.*, 2021). Although COVID-19 has brought unprecedented obstacles to education, it boosted students' adoption of online learning three-fold (Robert, 2022), allowing institutions to propagate innovative and flexible instructional approaches. Hybrid-Flexible (HyFlex) course is one of the learning models that flourished as a remedy in mitigating the challenges imposed

by the closure of institutions due to the pandemic (Verrecchia & McGlinchey, 2021; Harris *et al.*, 2020) although the concept of HyFlex has existed for more than a decade (Beatty, 2019).

A HyFlex course "provides the capacity for programs to serve remote students in additional to providing convenience and alternatives to regional students" (Beatty, 2019, p. 12). It allows student to choose from one of the three participation modalities, namely physical (attend physical classroom), online synchronous (attend via online conference call platform), and online asynchronous (watch the recording of the class session). Students can change their participation for each class session depending on their personal preferences or needs (Beatty, 2019). The HyFlex learning model offers various benefits such as increasing learning access and flexibility to the learners (Lakhal *et al.*, 2017), providing enriched learning materials that cater to diverse learning styles and preferences (Abdelmalak, 2014), enhancing students' learning outcomes and course completion rates (Irvine *et al.*, 2013), as well as enabling institutions to have higher student enrolment and revenue, reduce unnecessary cost, and create crisis-proof courses (Beatty, 2019). However, implementing this model poses challenges like additional workload for the instructors (Lakhal *et al.*, 2017), managing engagement among both online and in-person learners (Conklina *et al.*, 2017), and technological issues (Bower *et al.*, 2015), which can affect students' learning experience. Hence, this study aims to investigate learning satisfaction and choice of participation modalities as well as the factors affecting both variables among student teachers in Malaysia.

## 2. Literature Review

There are several studies which evaluated student satisfaction towards HyFlex courses. A qualitative study was conducted by Abdelmalak (2014) which explored the satisfaction of six university students who joined a HyFlex course and found that students have more control over their learning. Their schedule, learning styles, and needs were accommodated by the flexibility of participation offered by the HyFlex course. Lakhal *et al.* (2014) did a quantitative research with 439 undergraduate students enrolled in a 10-week HyFlex course, the study revealed that satisfaction level among synchronous students was significantly higher than the students who mostly attended the course asynchronously. A mixed methods study with 311 tertiary level students done by Gobeil-Proulx (2019) found that the flexibility and convenience provided in a HyFlex course were greatly appreciated by students. Interestingly, about 70% of the students stick to one type of participation modality throughout the semester, but the reasons behind this phenomenon were not explained. Rhoads (2020) also did a mixed method study on a HyFlex learning format which comprised 81 undergraduate students; the qualitative findings showed that student satisfaction had a positive relationship with flexibility in attendance. Similar results regarding satisfaction towards the HyFlex learning format were also found by Kakeshita (2021), who showed that around 85% of the 135 students reported high satisfaction with the HyFlex course because their learning needs were met, findings from the article also indicated that students revisit the learning content as recordings of the lecture were given.

Nevertheless, most of the aforementioned studies also revealed a variety of predicaments associated with the HyFlex model. Students reported difficulties staying engaged in the online modalities and were concerned about the quality and consistency of instruction across different modalities (Gobeil-Proulx, 2019). It was also found that some students still prefer the traditional learning mode as it motivates them to complete their learning tasks, and students felt it easier to engage with their instructor should they have any questions (Rhoads, 2020). Furthermore, Liu and Rodriguez (2019) mentioned that students needed help understanding the HyFlex learning format, which caused them to underutilize the learning resources and have less interaction with the instructor.

Compared to the number of studies on online teaching, "research regarding students' perceptions of HyFlex is limited" (Abdelmalak & Parra 2016, p.20), particularly on the factors affecting students' choice of participation modalities in a HyFlex course. Students' attendance

influences learning outcomes, but the impact may vary depending on the teaching modality and individual learning styles (Green, 2021). Students' decisions on the participation mode can be influenced by logistical factors, health conditions, and personal obligations (Blankson *et al.*, 2014). The Unified Theory of Acceptance and Use of Technology (UTAUT) model can explain why students chose a particular participation mode. The UTAUT model is a theoretical framework developed to understand and predict individuals' acceptance and use of technology. According to Venkatesh *et al.* (2003), four key factors that would influence one's behavioral intentions and adoption of technology were identified, namely performance expectancy (users' belief that using the technology will enhance their performance and productivity), effort expectancy (users' perception of the ease of use and the effort required to use the technology), social influence (the impact of social factors, such as social norms and peer influence, on users' acceptance and use of technology), and facilitating conditions (the extent to which users perceive that the necessary resources and support are available to use the technology effectively). To put these factors in the context of participation modalities selection among the students in a HyFlex course, an introverted student may choose to participate via online while more extroverted students may choose the physical mode (performance expectancy), learners that are staying further away from campus or have a packed schedule might opt for the online options (effort expectancy), one might follow when their friends decided to participate via a specific learning mode (social influence), and students that have connectivity issues or are less familiar with online learning tools may lean towards the physical mode of learning (facilitating conditions).

Given the mixed perceptions towards a HyFlex course among the students, as well as the lack of studies regarding HyFlex learning, there is a need to investigate students' learning satisfaction and the reasons behind their decision of participation modalities in a HyFlex course. As such, the research questions addressed in this study are the following:

1. What is the extent of student teachers' satisfaction with the HyFlex course?
2. Is there a significant relationship between participation modalities and students' satisfaction in a HyFlex course?
3. What factors affect student teachers' satisfaction with the HyFlex course?
4. What factors affect student teachers' choice of participation modalities in a HyFlex course?

## 3. Methodology

### *3.1 Research Design*

This study employed an explanatory sequential mixed methods approach. According to Creswell and Clark (2018), this research approach begins by conducting the quantitative phase. A subsequent qualitative phase follows it to dive deeper into specific results from the initial phase. The main intent of this design is to utilize the qualitative component to explain the quantitative results.

### *3.2 Participants and the HyFlex Course*

A total of 56 student teachers from the Bachelor of Education (Physical Education) programme registered for the educational technology course which was taught for 14 weeks at the end of 2022. Three participation modalities were provided to all students. For each class session, they were allowed to choose whether they would like to participate by being physically in the Putra Future Classroom (PFC) (in-person), via Zoom or Skype (online synchronous), or by watching the recorded lectures (online asynchronous). PFC is equipped with overhead cameras, high-speed broadband, multiple TV screens, and wireless audio system, allowing

face-to-face and online synchronous students to interact. The recordings of the weekly lecture and the learning materials were uploaded to the learning management system accessible by the students.

For the quantitative phase of this study, 26 students (14 males, 12 females) completed the questionnaire, four participants (2 males, 2 females) from the same group were purposively recruited to participate in the focus group discussion (FGD), two (1 male, 1 female) of the four participants mostly participated the HyFlex course physically while the other two (1 male, 1 female) mostly participated the course online synchronously.

### *3.3 Data Collection and Data Analysis*

A satisfaction questionnaire which comprises 11 items were adapted from Shek *et al.* (2022) to measure student teachers' satisfaction towards the HyFlex course. Shek *et al.* (2022) tested the reliability of the items in 11 different lectures and obtained an average Cronbach's alpha value of more than .97. In this study, the learning satisfaction measured was segregated into two categories, namely course design (6 items) and instructor attributes (5 items). All the items used a five-point Likert format, ranging from 1 to 5 (1 = strongly disagree to 5 = strongly agree). Table 1 illustrates the 2-times-2 contingency table of participation modalities and satisfaction. Based on the table, the assumption of chi-square test is not met as 50% (more than 20%) of the cells have expected count less than 5. Thus, the Fisher's Exact test was used, this test is also particularly useful for a small sample size and a two-times-two contingency table (Sprent, 2011), which fits this study well.

After quantitative data analysis, a FGD was conducted to follow up on quantitative findings requiring more context. Qualitative data were collected via a combination of structured and unstructured questions. Before the FGD, prompt questions were pre-prepared according to the research objectives and throughout the FGD, open-ended questions were also asked spontaneously so that the participants' responses are not limited to the researcher's bias (Creswell & Creswell, 2018). For qualitative data analysis, content analysis is employed as it allows researchers to systematically identify key themes within the FGD transcript (Erlingsson & Brysiewicz, 2017). All four students' names were modified to S1 to S4 in the qualitative findings section to keep their personal information confident.

Table 1. *Crosstabulation between participation modalities and satisfaction.*

| | | | **Satisfaction** | | |
|---|---|---|---|---|---|
| | | | Satisfied | Very satisfied | Total |
| **Participation Modalities** | Mostly at PFC | Count | 10 | 8 | 18 |
| | | Expected Count | 7.6 | 10.4 | 18.0 |
| | Mostly via Zoom or Skype | Count | 1 | 7 | 8 |
| | | Expected Count | 3.4 | 4.6 | 8.0 |
| Total | | Count | 11 | 15 | 26 |
| | | Expected Count | 11.0 | 15.0 | 26.0 |

## 4. Quantitative Findings

As shown in Table 2, most of the respondents (69.2%) regularly participated the lecture physically, followed by online synchronous mode (30.8%), and no respondent reported that

they often participate the lecture online asynchronously. Based on Table 3, more than 80% of the students strongly agreed or agreed that they were satisfied with both the course design and instructor attribute domain of the HyFlex course. The overall mean score for satisfaction towards course design and instructor attribute were 4.52 (SD = .70) and 4.64 (SD = .62) respectively, showing a high rating of overall satisfaction towards the HyFlex course. The Fisher Exact significant value (2-sided) obtained is P = .08, as the significant value is more than the alpha value ($\alpha$ = .05), this indicates that no significant association was found between participation modalities and satisfaction.

Table 2. *Frequency and percentage of student teachers' participation modalities preference.*

| **Participation modalities** | **Frequency** | **Percentage** |
|---|---|---|
| Mostly at PFC | 18 | 69.2 |
| Mostly via Zoom | 8 | 30.8 |
| Mostly watch recording | 0 | 0 |
| Total | 26 | 100.0 |

Table 3. *Frequency and percentage of student teachers' satisfaction.*

| Items | Strongly disagree | | Disagree | | Neutral | | Agree | | Strongly agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *f* | % | *f* | % | *f* | % | *f* | % | *f* | % |
| 1. Overall, I like the learning experience in this HyFlex course.[a] | 0 | 0 | 2 | 7.7 | 3 | 11.5 | 5 | 19.2 | 16 | 61.5 |
| 2. The course design is well thought out. [a] | 0 | 0 | 1 | 3.8 | 1 | 3.8 | 4 | 15.4 | 20 | 76.9 |
| 3. It is easy for me to collaborate with my peers in this course. [a] | 0 | 0 | 1 | 3.8 | 0 | 0 | 5 | 19.2 | 20 | 76.9 |
| 4. This HyFlex course allows me to learn the lecture according to my situation. [a] | 0 | 0 | 0 | 0 | 2 | 7.7 | 9 | 34.6 | 15 | 57.7 |
| 5. This HyFlex course allows me to learn the lecture efficiently. [a] | 1 | 3.8 | 1 | 3.8 | 1 | 3.8 | 9 | 34.6 | 14 | 53.8 |
| 6. This course helped me in understanding the concept of educational technology. [a] | 0 | 0 | 1 | 3.8 | 0 | 0 | 7 | 26.9 | 18 | 69.2 |
| 7. The instructor has a good mastery of the learning materials. [b] | 0 | 0 | 1 | 3.8 | 0 | 0 | 5 | 19.2 | 20 | 76.9 |
| 8. The instructor used different methods to promote learning. [b] | 0 | 0 | 1 | 3.8 | 0 | 0 | 4 | 15.4 | 21 | 80.8 |
| 9. The instructor is able to help students understand the topics covered in the lecture. [b] | 0 | 0 | 1 | 3.8 | 0 | 0 | 7 | 26.9 | 18 | 69.2 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 10. The instructor can manage both physical and online students effectively. [b] | 0 | 0 | 1 | 3.8 | 0 | 0 | 9 | 34.6 | 15 | 57.7 |
| 11. Overall, my evaluation for the instructor is very positive. [b] | 0 | 0 | 0 | 0 | 1 | 3.8 | 6 | 23.1 | 19 | 73.1 |

Notes: [a]Course design domain, [b]instructor attributes domain.

## 5. Qualitative Findings

The factors behind students' satisfaction were explored in the qualitative phase. This section begins with reasons why students were satisfied with the HyFlex course, which comprises (1) meeting learner's needs, (2) promoting self-directed learning, and (3) providing affective and professional benefits. It is followed by the factors affecting student choice of participation modalities in the HyFlex course. It was reported that students chose the synchronous mode based on their personal preference and empathy towards the instructor's commitment while they chose the online options due to energy level, together with health and personal matters. Peer influence plays a significant role in affecting their decision too.

### *5.1 The Flexibility of Attendance Fulfils Learners' Needs*

When asked about what they liked about the HyFlex course, one of the students stated that the flexibility provided by HyFlex is what he desired most, "*…we can choose which [participation modalities] we want or the one that is most suitable for us… If we can't attend live, we can still watch back the recording"* (S1). Another student recalled one scenario during that course and shared: "…*I remember why I joined via online is because I was tested positive for COVID, and during that time everyone was doing group discussion…"* (S2), that student continued sharing by holding up her phone with one hand and waved towards her phone with another hand: "*…and they video called me from the physical classroom like 'hi'*" (S2). The same student shared the struggles faced by the students in attending lectures: "*although time is allocated for each subject, most of us have commitments like training as we are athletes right, so we would have training outside of campus…"* (S2). Other students further added that learning still occurs in spite of the participation modalities which made learning more convenient for the students, "*...like in Zoom, we can be divided into breakout rooms and have activities…*" (S3). "*I agree… the options give us convenience and ease because we can choose the time we learn*" (S4).

### *5.2 The Accessibility of Learning Resources Empowers Self-directed Learning*

Another theme that emerged from the participants' positive experience with the HyFlex course is that students take ownership of their learning process. A student mentioned that her self-learning was enriched by the accessible learning materials provided in a HyFlex course: "*it can become a self-learning material too, like we did join the class physically, then after the class, instead of opening the slides and take notes only, we can actually watch back what has been said by Prof. via the recording, so from there we can revise*" (S2).

Another student resonated with the fact that students have more autonomy on how they learn in a HyFlex course: "*Like for me honestly, I'm the last-minute kind of student, so I would use all the learning resources provided by Prof. and study before the final exam. So it's very helpful for me because I just click, and all the lectures and learning resources from week one to week 13 are there*" (S3). The same student also pointed out that the learning resources provide student with different learning progress the same learning opportunities, making learning more equitable to all students: "*because it's like unfair to those that couldn't make it to class, as they would not learn the knowledge of that session. Like 'S2' mentioned just now,*

*we still have the learning materials and recordings provided, so there's no excuse to not study*" (S3).

### *5.3 HyFlex Course Provide Students with Affective and Professional Benefits*

When prompted deeper on how the flexibility and autonomy benefits the students, one of the participants expressed that HyFlex learning format reduced her psychological distress: "*For me, it reduces my pressure, as in we don't know right sometimes, we have emergency or other matters that are critical, so I can't join the class physically, it's okay because I can have another choice to gain the knowledge that Prof. taught on that session*" (S2). Another student agreed by saying: *"…we also have back-to-back classes, the distance between two classes can be very far away too, so it will be hard. Like we need to make sure the classes end on time right, let's say this lecturer does not finish class on time, it will drag and affect your next class. So I think this HyFlex can reduce students' pressure as they can choose*" (S1).

Besides reducing academic pressure, the students stated that HyFlex course can increase their motivation to learn due to the ubiquitous learning resources given: "*let's say the course is only physical, once you missed a session, you will need to approach your friends or the lecturer to catch back on the learning content for that session. When we have HyFlex, like we said before all the lectures and learning materials are there. So you don't have to like WhatsApp your friend, and your friend would need effort to recall and reply, maybe that friend know the learning content but it's not 100% accurate like in class*" (S3). Intriguingly, a participant perceived being in a HyFlex course as a chance to be exposed to different instructional methods that can potentially enhance his future career, "…*we can get a taste of running physical, online synchronous, and online asynchronous class. I can observe how Prof. prepare and conduct the different medium of learning so that all students are not left out in learning. So I think experience like this is important for us especially the ones that are majoring in education for our future career*" (S1).

### *5.4 Factors Affecting Student Choice of Participation Modalities in a HyFlex Course*

Regarding the reasons behind students' choice of participation mode for each class session, the students shared that they chose to participate physically because of their empathy towards the instructor, *"…only a few students in physical class and online synchronous, I feel like it's not respecting the lecturer…and I empathize with lecturers that have put in the commitment to teach*" (S1). This comment was seconded by another student, saying: "*Like what 'S1' said, we respect Prof. as our lecturer. How would she feel if she sees four physical students and nine online students only. At that moment she did not show her feelings, but we need to understand, because we are going to be in her shoe also one day*" (S2). Students decide their participation mode based on their learning style too, one participant shared at length about this factor: "*Like for me, I don't really like watching recording, some more the videos are always like long…more than an hour… I need to just sit down, it's really not my style*" (S1).

Moreover, students also shared that they chose the online options when their degree of fatigue is higher, "*Like even at night time we still have classes and it's all physical classes, it's very tiring, and the next morning we also have classes…so it becomes like ahh just watch the recording would be enough la*" (S1), "*I also have training every day, so will feel like lazy haha, so my option is online. But it depends on the student himself, if [I] feel like [I] have the responsibility to study, then I will go [physical class]. But there are times when the students don't join even join through online, didn't join at all…*" (S4). When participants were asked about why those students did not join, one participant claimed that: "*maybe they are not interested with the subject*" (S3), but another participant disagreed and stated that they did not join because of the lack of interest in study as a whole instead of that subject only, and further described the unique learning style of physical education students: "*…we are more interested in workshops, do activities instead of sit and listen, can't focus on one thing for a long time*" (S2).

Peer influence was also one of the driving motives that affected student's decision, one student explained how this happened: "*Like for example our class is until 11pm at night, so we become really tired right, so when our friends are tired and do not feel like attending, we would follow, and sometimes we would be the ones initiating and them follow too*" (S3). Other than these factors, the previous section also indicated that students chose the online options due to health matters like the contraction of COVID-19 as well as personal commitments such as trainings.

## 6. Discussion

The primary aim of this study is to examine student teachers' extent of satisfaction towards a HyFlex course and the association between participation modalities and satisfaction, as well as exploring the factors affecting their level of satisfaction and decision on participation modalities in a HyFlex course. It is important to mention that there is a possibility that the students who participated mostly via online asynchronous mode did not respond to the survey as the participant indicated that they do not have an interest in studying in general.

The high overall mean scores for satisfaction towards both the course design and instructor attributes of the HyFlex course found in the quantitative phase were validated by the qualitative findings, the student teachers appreciated the flexibility in participating the class for each week as they were allowed to learn according to their learning preferences and personal schedules. When the student teachers could not attend the class synchronously due to personal commitments or unforeseen reasons like health issues, HyFlex enabled them to learn using their most effective ways and keep up with the learning progress. The flexibility offered by HyFlex was particularly important to the student teachers in this study because the majority of them were athletes, and they had commitments like trainings and competitions that often clashed with the timing of the class sessions. This flexibility increased the ease of learning within the students and helps them balance their academic progress and personal responsibilities, contributing to their overall satisfaction towards the course. This is in line with the findings in the studies done by Rhoads (2020), Gobeil-Proulx (2019), and Lakhal *et al.* (2017) which concluded that students valued the flexibility and convenience provided in a HyFlex course.

The statistical findings also showed that the level of satisfaction towards the HyFlex course among the student teachers is independent of the types of participation mode, and this can be explained via the responses from the FGD which revealed that students had equal learning opportunities despite their choice of participation mode. This is because the enriched learning materials such as recordings of lectures, reading materials and discussion forums were ubiquitous and accessible to all students within the HyFlex course. This prevented the student teachers from being left out as they could still participate in the lecture asynchronously when they were unable to be present during the class sessions due to personal obligations. This is especially beneficial for the participants who were athletes in this study, as their regular commitment to trainings and competitions would often leave them feeling exhausted, making them more prone to being absent or distracted in class. By providing multiple modes of access to the learning content, all students with different learning needs can have an equal opportunity to succeed in the course. This finding resonated with the research by Abdelmalak (2014) and Kakeshita (2021) which stated that HyFlex courses can cater to different learning needs.

Findings from this study also found that with the flexibility, accessibility, and convenience given in a HyFlex course, learners become not only more satisfied, but also more motivated to learn, making their learning more self-directed (Kakeshita, 2021). This can empower learners to take ownership of their learning by deciding when and how they want to learn. For instance, the responses from the FGD in this study showed that before exams, students would re-experience the lecture via the recordings to review the course materials multiple times for a better understanding. This can potentially improve students' learning outcomes, reduce learning loss and dropout rates, and increase the overall course completion rate amongst the students (Beatty, 2019; Irvine *et al.*, 2013). This finding is particularly pertinent to Asian learners as their classrooms tend to be more teacher-centered, but

classrooms with a more student-centered instruction within East Asian societies have been found to have higher achievement (Kim, 2018). To the researchers' surprise, a HyFlex course can also develop students' future career prospects as they are exposed to the innovative instructional approaches of HyFlex throughout the course. They could learn effective ways of conducting physical, online synchronous, and online asynchronous instruction, which could contribute to their professional growth, considering their future roles as educators. This hands-on experience could also concretize students' learning about educational technology. This finding is rarely seen in the literature on HyFlex learning, but the researchers acknowledge that this finding would most likely only ring true in cases where the learners of the HyFlex course are majoring in education-related programmes of study.

Furthermore, this study also revealed that although HyFlex can cater to various learning needs, practitioners must be aware of students' learning styles and tailor their instruction accordingly to ensure the quality of the learning experience. As most of the student teachers in this study were athletes, they admitted that their learning style leans towards the kinesthetics' side of learning style. Thus, the instructor needs to utilize teaching methods which are more tactile to keep the learners engaged. However, this study indicates that when it comes to student choice of participation modalities, there were factors which are out of the locus of control of the instructor. Student's decision to participate in a class session can directly influence their peers' decisions as learners that are close friends tend to stick together throughout the instruction. Findings from this study also suggested that students attended the class synchronously because they felt bad for the instructor if only a few students were present during the lecture. This shows that Asian students may conform to classroom norms due to their respect for authority figures such as instructors in a HyFlex learning environment (Li & Campbell, 2008). Additionally, responses from the FGD suggested that when students are not in good health condition, feel exhausted due to a packed academic timetable and personal commitments like training, or are bound by personal obligations like a family plan which clashes with the lecture's timing, they would opt for the online options. This finding parallels the study by Blankson *et al.* (2014), which concluded that student choice of participation mode was influenced by their health, personal commitments, and commuting challenges. In other words, different groups of students would have a different pattern of participation modalities selection as their academic schedule as well as their attitudes towards learning and the instructor would be different. Also, students' choice of participation mode would be affected during the period of homecoming festivals as students would prioritise travelling plans, or during the onset of the cold and flu season when more learners are more prone to getting ill.

## 7. Conclusion

As a whole, this study showed that HyFlex course can potentially be a suitable learning model for Asian student teachers who are majoring in bachelor's degree in education (physical education) mainly because the flexibility in classroom participation and the equity in learning opportunities. The HyFlex learning model was able to accommodate students' learning needs due to unforeseen circumstances and personal commitments, which enabled learners to have the best of both worlds between their academic progress and personal lives. With the accessible and ubiquitous learning resources, learning becomes more self-directed and more equitable among students, this may alleviate their anxiety about falling behind in learning and allow them to feel more motivated to learn. This could potentially enhance their learning performance as well as reduce dropout rate and learning loss among the students. Other than that, student teachers also benefitted from the HyFlex course in terms professional development as they gained exposure to integrating an innovative learning format. Suffice to say, policy makers, faculties and instructors should consider incorporating the HyFlex learning model into the teaching and learning experience.

Regarding student choice on participation modalities, this study found that students choose their participation mode depending on their empathy towards the instructor, learning style, level of fatigue, and influence from their peers. The trend of students' choice of participation can be predicted based on factors such as the holiday season and times when

illnesses are more prevalent — leading to a higher number of students choosing the online options. Future studies can look into learning interest or motivation among students and how it relates to their preferred participation modalities in a HyFlex course as this study suggests that students' choice of learning mode was affected by their learning desire. While qualitative findings from this study have shown that a HyFlex course can promote learning equity, future studies can provide more empirical results regarding learning equity across all participation modalities.

## 8. Limitations of the Study

A few limitations exist within this study. Firstly, the small sample size which did not encompass students who mostly participated in the lectures asynchronously, and the fact that all participants in this study were from the physical education programme affect the representation of this study towards other student groups, a larger number of samples from a more diverse demographics can be recruited to expand the generalizability of the findings further. Moreover, the data collected were self-reported and were based on the student teachers' honesty and perception of their learning experience in the HyFlex course.

## References


Abdelmalak, M. (2014, March). Towards flexible learning for adult students: HyFlex design. In *Society for Information Technology & Teacher Education International Conference* (pp. 706-712). Association for the Advancement of Computing in Education (AACE).

Abdelmalak, M. M. M., & Parra, J. L. (2016). Expanding learning opportunities for graduate students with HyFlex course design. *International Journal of Online Pedagogy and Course Design (IJOPCD)*, *6*(4), 19-37.

Beatty, B. (2019). *Hybrid-flexible course design*. EdTech Books.

Bower, M., Dalgarno, B., Kennedy, G., Lee, M. J., & Kenney, J. (2014). *Blended synchronous learning: A handbook for educators*. Sydney, Australia: Office for Learning and Teaching, Department of Education.

Conklina, S., Oyarzun, B., & Barreto, D. (2017). Blended synchronous learning environment: Student perspectives. *Research on Education and Media*, *9*(1), 17-23.

Creswell, J. W., & Clark, V. L. P. (2018). *Designing and Conducting Mixed Methods Research*. 780.

Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 388.

Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A., & Sicilia, N. (2018). Blended learning: the new normal and emerging technologies. *International journal of educational technology in Higher education*, *15*, 1-16.

Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. *African Journal of Emergency Medicine*, *7*(3), 93–99.

Ferlito, C., Sazuki, F., Lim, A., & Weerasena, B. (2021). *The Economic Impact of School Closures in Malaysia*.

FMT Reporters. (2022). *Over 17,000 dropped out of Govt varsities last year, says minister*. FMT Media Sdn Bhd. https://www.freemalaysiatoday.com/category/nation/2022/03/03/over-17000-dropped-out-of-govt-varsities-last-year-says-minister/

Gobeil-Proulx, J. (2019). La perspective étudiante sur la formation comodale, ou hybride flexible. *Revue internationale des technologies en pédagogie universitaire*, *16*(1), 56-67.

Green, K. (2021). Lecture modality: Student attendance choices and performance. In *Advances in Accounting Education: Teaching and Curriculum Innovations* (Vol. 25, pp. 119-131). Emerald Publishing Limited.

Harris, B. N., McCarthy, P. C., Wright, A. M., Schutz, H., Boersma, K. S., Shepherd, S. L., ... & Ellington, R. M. (2020). From panic to pedagogy: Using online active learning to promote inclusive instruction in ecology and evolutionary biology courses and beyond. *Ecology and evolution*, *10*(22), 12581-12612.

Irvine, V., Code, J., & Richards, L. (2013). Realigning higher education for the 21st century learner through multi-access learning. *Journal of Online Learning and Teaching*, *9*(2), 172.

Kakeshita, T. (2021, April). Improved HyFlex Course Design Utilizing Live Online and On-demand Courses. In *CSEDU (2)* (pp. 104-113).
Kim, Y. (2018). Revisiting classroom practices in East Asian Countries: Examination of within-country variations and effects of classroom instruction. *Teachers College Record*, *120*(7), 1-42.
Kyei-Blankson, L., Godwyll, F., & Nur-Awaleh, M. A. (2014). Innovative blended delivery and learning: exploring student choice, experience, and level of satisfaction in a hyflex course. *International Journal of Innovation and Learning*, *16*(3), 243-252.
Kyei-Blankson, L., Godwyll, F., & Nur-Awaleh, M. A. (2014). Innovative blended delivery and learning: exploring student choice, experience, and level of satisfaction in a hyflex course. *International Journal of Innovation and Learning*, *16*(3), 243-252.
Lakhal, S., Bateman, D., & Bédard, J. (2017). Blended Synchronous Delivery Mode in Graduate Programs: A Literature Review and Its Implementation in the Master Teacher Program. *Collected Essays on Learning and Teaching*, *10*, 47-60.
Lakhal, S., Khechine, H., & Pascot, D. (2014, October). Academic students' satisfaction and learning outcomes in a HyFlex course: Do delivery modes matter?. In *E-Learn: World conference on E-Learning in corporate, government, healthcare, and higher education* (pp. 1075-1083). Association for the Advancement of Computing in Education (AACE).
Latif, A., Choudhary, A. I., & Hammayun, A. A. (2015). Economic effects of student dropouts: A comparative study. *Journal of global economics*.
Li, M., & Campbell, J. (2008). Asian students' perceptions of group work and group assignments in a New Zealand tertiary institution. *Intercultural Education*, *19*(3), 203-216.
Liu, C. Y. A., & Rodriguez, R. C. (2019). Evaluation of the impact of the Hyflex learning model. *International Journal of Innovation and Learning*, *25*(4), 393.
New Straits Times. (2022). *NST Leader: Dropout by degrees*. https://www.nst.com.my/opinion/leaders/2022/08/818575/nst-leader-dropout-degrees
Rhoads, D. D. (2020). *Traditional, online or both? A comparative study of university student learning and satisfaction between traditional and hyflex delivery modalities* (Publication No. 27995688) [Doctoral dissertation, Concordia University]. ProQuest Dissertations Publishing.
Robert, J. (2022). *Modality Preferences*. https://www.educause.edu/ecar/research-publications/2022/students-and-technology-report-rebalancing-the-student-experience/modality-preferences
Sprent, P. (2011). Fisher exact test. In *International encyclopedia of statistical science* (pp. 524-525). Springer, Berlin, Heidelberg.
Verrecchia, P. J., & McGlinchey, M. J. (2021). Teaching during covid: The effectiveness of the HyFlex classroom in a 300 Level Statistics class. *Journal of Education and Training Studies*, *9*(3), 23-27.