Assessing Readiness and Knowledge on HyFlex Learning: A Needs Assessment

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Abstract. Hybrid Flexible (HyFlex) learning is a teaching method that combines elements of hybrid and blended learning into a flexible course framework that allows students to attend classroom sessions, participate online, or do both. The study aimed to assess the level of content knowledge and readiness of the students and faculty members of the College of Education in Nueva Ecija University of Science and Technology, main campus, in HyFlex learning in terms of the learning environment, assessment procedures, and technicality. The researchers utilized a quantitative approach through a descriptive research design with questionnaire as the main instrument, which is composed of two parts. The first part is a content knowledge test, and the second part is a survey on readiness in HyFlex learning. The researchers selected two-hundred eighty-nine (289) students and twenty (20) faculty members as respondents of the study. The findings implied that most of the students and faculty members reveal a medium level of content knowledge regarding the learning environment. Moreover, while most of the students have a medium level of content knowledge in HyFlex learning in terms of the assessment procedures, the faculty members reveal a high level of content knowledge in the component. Additionally, most of the students and faculty members have a high level of content knowledge in terms of technicality. Also, findings suggest that the students and faculty members are moderately prepared in engaging in a HyFlex environment. In line with these results, several actions were proposed in order for the students and faculty to successfully engage in a HyFlex course.

Keywords: HyFlex learning, content knowledge, readiness, learning environment, assessment procedures, technicality

1   Introduction

The COVID-19 pandemic has greatly disrupted the educational system in the Philippines, forcing the country's educational institutions to implement non-face-to-face modalities such as online classes and modular distance learning. According to the Commission on Higher Education Chairperson Prospero de Vera III, "flexible learning will be the new norm, and that there will be no going back to the traditional full-packed face-to-face classrooms." De Vera added that switching back to traditional face-to-face

classes would be a waste of "investments in technology, teachers' training, and retrofitting of our facilities."

The CHED chairperson explained that the commission and different state universities and colleges (SUCs) shall adopt the policy to eradicate or at least lessen the "run the risk of exposing our educational stakeholders to the same risk if another pandemic comes in." (G. Calvelo, 2021, ABS-CBN News)

However, in September 2022, CHED released the Updated Guidelines on the Implementation of Face-to-face Classes in Higher Education or the Emergence of Hybrid Learning through the CHED Memo-randum No. 9, series of 2022, taking into account the high COVID-19 vaccination coverage in the nation, the higher education sector, and the nation's classification as low-risk. According to UNESCO, hybrid learning is a strategy to education that combines online and in-person instruction to prepare students for a possible comeback and for when schools reopen. Making the most of the learning environment that results from fusing in-person instruction with technology-assisted instruction is the main objective of hybrid learning, which aims to facilitate students' learning. (UNESCO, 2021)

The issuance of the CHED Memorandum No. 09, series of 2022 served as a guide for Higher Education Institutions (HEIs) on how to self-reopen campuses for the implementation of face-to-face classes based on their capacity to meet the minimum public health standards established by the national government and to achieve the support of their stakeholders. On the other hand, several problems were encountered in the implementation of limited face-to-face classes. Malipot (2022) details the difficulties that both teachers and students faced in the pilot face-to-face classes, noting that the little time allowed to each student meant that they hardly had opportunity to ask questions regarding the material. The article also mentioned that teachers have limited time to address all of the students' learning concerns and that they have limited teaching and learning resources. Some students "cannot clearly see what was written on the board due to physical distancing," while others "cannot clearly hear what the teacher is saying because of face masks and barriers."

The study entitled "Assessing Readiness and Knowledge on HyFlex Learning: A Needs Assessment" intends to evaluate the College of Education at Nueva Ecija University of Science and Technology (NEUST) for HyFlex learning readiness and topic knowledge. The purpose of the study is to ascertain what teachers and students require in order to successfully use HyFlex learning to maximize the learning environment. Additionally, this study attempts to offer recommendations for the HyFlex approach, including course protocols, necessary technologies, necessary supports, and the optimal way to involve its educational stakeholders.

Objectives of the Study
The purpose of the study was to evaluate the instructors' and students' topic understanding and preparedness for HyFlex learning in a particular Tertiary Education program. It aims to provide solutions to the following queries in particular:
1. How may the content knowledge of the respondents in using HyFlex learning be described in terms of:
1.1 the learning environment;

1.2 assessment procedures; and

1.3 technicality?

2. How may the readiness of the respondents in using HyFlex learning be described in terms of:

2.1 the learning environment;

2.2 assessment procedures; and

2.3 technicality?

3. Is there a significant relationship between the respondents' content knowledge and readiness in using HyFlex learning?

4. What possible actions may be proposed based on the level of content knowledge and readiness of the respondents?

2   Methodology

2.1 Design. The study used a quantitative research method with a descriptive-correlational design to investigate the level of content knowledge and readiness of respondents for HyFlex learning implementation. Data was collected through surveys and questionnaires, focusing on the relationships between these factors. The study aimed to determine if the correlation between these factors is significant, indicating that this research method and design were most suitable for achieving the study's objectives.

2.2 Research Instrument. Researchers used a questionnaire to gather data on HyFlex learning. The first part was a content knowledge test with 40 statements, requiring respondents to rate each statement as True or False. The second part was a survey on respondents' readiness for HyFlex learning, consisting of 30 statements about its learning environment, assessment procedures, and technicality. Respondents used a 4-point Likert scale to indicate their agreement or disagreement with each statement.

2.3 Data Analysis. Researchers assessed respondents' content knowledge of HyFlex learning by calculating their percentage scores in learning environment, procedures, and technicality. Table 1 displays the scale used to determine respondents' knowledge level.

Table 1. Level of Content Knowledge Scale

Percentage Score	Description
81% - 100%	Very High Level of Content Knowledge
61% - 80%	High Level of Content Knowledge
41% - 60%	Moderate Level of Content Knowledge
21% - 40%	Low Level of Content Knowledge
0% - 20%	Very Low Level of Content Knowledge

In determining the level of readiness of the respondents, the researchers used a 4-point Likert scale. The responses for each of the survey items were recorded in terms of the respondents' ratings. The scale used in determining the level of readiness of the respondents in HyFlex learning in terms of the learning environment, assessment procedures, and technicality can be viewed in Table 2.

Table 2. Level of Readiness Scale

Mean	Description
3.26 – 4.00	High Level of Readiness
2.51 - 3.25	Moderate Level of Readiness
1.76 – 2.50	Low Level of Readiness
1.00 – 1.75	Lack of Readiness

In determining the significant relationship between the respondents' level of content knowledge and level of readiness in using HyFlex learning, Pearson Product-Moment Correlation was used.

3   Results and Discussions

3.1   Level of Content Knowledge

a. Student-Respondents

1.1 Learning Environment

Table 3. Learning Environment Percentage Scores

Scores	f	%
81% - 100%	41	14.19
61% - 80%	213	73.70
41% - 60%	31	10.73
21% - 40%	4	1.38
TOTAL	289	100.00

Table 3 shows the percentage scores of the respondents in the content knowledge test in terms of the learning environment. Based on the table, four students (1.38%) obtained percentage scores ranging from 21% to 40%; 31 students (10.73%) obtained percentage scores ranging from 41% to 60%; 213 students (73.70%) obtained percentage scores ranging from 61% - 80%; and 41 students (14.19%) obtained percentage scores ranging from 81% to 100%.

Since majority of the students (73.70%) obtained percentage scores ranging from 61% to 80% which represents high level of content knowledge, then it can be deduced that the students are highly knowledgeable regarding HyFlex learning in terms of the learning environment. Every participant, according to Koskinen (2018), appreciated the freedom and options offered to students in a HyFlex course. The study's participants preferred having weekly flexibility in how they would like to attend classes. Although a small number of participants may not have benefited from this freedom, they valued the chance to make their own decisions.

1.2 Assessment Procedures

Table 4. Assessment Procedures Percentage Scores

Scores	f	%
81% - 100%	114	39.45
61% - 80%	135	46.71
41% - 60%	31	10.73
21% - 40%	8	2.77
0% - 20%	1	0.35
TOTAL	289	100.00

Table 4 shows the percentage scores of the respondents in the content knowledge test in terms of the assessment procedures. Based on the table, one student (0.35%) obtained percentage score ranging from 0% to 20%; eight students (2.77%) obtained percentage scores ranging from 21% to 40%; 31 students (10.73%) obtained percentage scores ranging from 41% to 60%; 135 students (46.71%) obtained percentage scores ranging from 61% - 80%; and 114 students (39.45%) obtained percentage scores ranging from 81% to 100%.

Since majority of the students (46.71%) obtained percentage scores ranging from 61% to 80% which represents high level of content knowledge, then it can be deduced that the students are highly knowledgeable regarding HyFlex learning in terms of the assessment procedures. According to one participant's assessment of an exploratory study by Koskinen (2018), it is crucial to provide the chance for interaction with the instructor. This speaks to the advantages of HyFlex courses, as they enable students to engage in meaningful interactions with their instructors, something that many online classes do not offer, depending on the course's structure.

1.3 Technicality

Table 5. Technicality Percentage Scores

Scores	f	%
81% - 100%	247	85.47
61% - 80%	33	11.42
41% - 60%	8	2.77
21% - 40%	1	0.35
TOTAL	289	100.00

Table 5 shows the percentage scores of the respondents in the content knowledge test in terms of the technicality. Based on the table, one student (0.35%) obtained percentage score ranging from 21% to 40%; eight students (2.77%) obtained percentage scores ranging from 41% to 60%; 33 students (11.42%) obtained percentage scores ranging from 61% to 80%; and 247 students (85.47%) obtained percentage scores ranging from 81% to 100%.

Since majority of the students (85.47%) obtained percentage scores ranging from 81% to 100% which represents a very high level of content knowledge, then it can be deduced that the students are extremely knowledgeable regarding HyFlex learning in terms of the technicality. According to Harris et al. (2020), technology makes even the most challenging jobs easier and more productive. Technology has made it possible for knowledge to be shared instantaneously and for communication to be faster and more efficient in the field of education. Additionally, kids can now participate and learn in ways that were not possible for them in a traditional classroom thanks to technology. Since integrating technology into the classroom is now one of the key techniques in optimizing the learning environment for successful learning and teaching, students' technical skills are always growing over time.

3.2   Teacher-Respondents

1.1 Learning Environment

Table 6. Learning Environment Percentage Scores

Scores	f	%
81% - 100%	4	20.00
61% - 80%	15	75.00
41% - 60%	1	5.00
21% - 40%	0	0.00
0% - 20%	0	0.00
TOTAL	20	100.00

Table 6 shows the percentage scores of the respondents in the content knowledge test in terms of the learning environment. Based on the table, one faculty member (5.00%) obtained percentage score ranging from 41% to 60%; fifteen faculty members (75.00%) obtained percentage scores ranging from 61% to 80%; and four faculty members (20.00%) obtained percentage scores ranging from 81% - 100%.

Since majority of the faculty members (75.00%) obtained percentage scores ranging from 61% to 80% which represents high level of content knowledge, then it can be deduced that the faculty members are highly knowledgeable regarding HyFlex learning in terms of the learning environment. Instructors are ready to convey the objectives of the course and its progress, ensure that students feel at ease in the classroom, and make an impression, claim Hall & Ripine (2021). They did, however, acknowledge that they felt less equipped to handle the complexities particular to the HyFlex modality. These complexities include managing students equally in two different settings—online and in person—during the same class hour. In the two distinct environments, faculty members appear less ready to synchronously exchange content and their attention with the students.

1.2 Assessment Procedures

Table 7. Assessment Procedures Percentage Scores

Scores	f	%
41% - 60%	1	5.00
21% - 40%	8	40.00
0% - 20%	11	55.00
TOTAL	20	100.00

Table 7 shows the percentage scores of the respondents in the content knowledge test in terms of the assessment procedures. Based on the table, one faculty member (5.00%) obtained percentage score ranging from 41% to 60%; eight faculty members (40.00%) obtained percentage scores ranging from 61% to 80%; and eleven faculty members (55.00%) obtained percentage scores ranging from 81% to 100%.

Since majority of the faculty members (55.00%) obtained percentage scores ranging from 81% to 100% which represents a very high level of content knowledge, then it can be deduced that the faculty members are extremely knowledgeable regarding HyFlex learning in terms of the assessment procedures. Based on the educational approaches that were discussed, it may also be inferred that faculty members considered ways to use discussion boards and prerecorded movies to engage students in an asynchronous format outside of scheduled class sessions. Aiming to a) build a balance of didactic techniques and b) make learners feel included in both locations, some of these pedagogical approaches were addressed in the literature and implemented by faculty members who had previously devised and deployed HyFlex instruction (Wang et al., 2017).

1.3 Technicality

Table 8. Technicality Percentage Scores

Scores	f	%
81% - 100%	19	95.00
61% - 80%	1	5.00
TOTAL	20	100.00

Table 8 shows the percentage scores of the respondents in the content knowledge test in terms of the technicality. Based on the table, one faculty member (5.00%) obtained percentage score ranging from 61% to 80%; and nineteen faculty members (95.00%) obtained percentage scores ranging from 81% to 100%.

Since majority of the faculty members (95.00%) obtained percentage scores ranging from 81% to 100% which represents a very high level of content knowledge, then it can be deduced that the faculty members are extremely knowledgeable regarding HyFlex learning in terms of the technicality. The findings of the Hall & Ripine (2021) study demonstrate the range of pedagogical strategies that educators take into account while

designing their HyFlex classrooms. While some faculty members considered more conventional asynchronous methods, like using the Learning Management System (LMS), others thought of more inventive ways, like inquiry-based learning, virtual surveys, and video sessions, that would enable synchronous collaboration, communication, and active learning.

Enilda Hall and Caldei-ra Ripine's (2021) study, which examines faculty members' assessed readiness to develop and execute HyFlex training, lends credence to these conclusions. According to the aforementioned study's findings, teachers felt competent enough to carry out the competencies needed for in-person instruction. Additionally, instructors felt that a range of pedagogical approaches may be used into HyFlex training; yet, before creating and executing a course, individuals who are unfamiliar with this instructional modality require a great deal of help and resources (Romero-Hall, E., & Ripine, C., 2021).

2.   Level of Readiness
a. Student-Respondents

2.1 Learning Environment

Table 9. Level of Readiness in Terms of Learning Environment

	Learning Environment	Mean	Verbal Interpretation
1.	I am able to attend to the challenge of distance learning where students are separated by geographic proximity.	3.20	Moderate
2.	I am comfortable having online and face-to-face classes, both at the same time.	2.89	Moderate
3.	I find it easy to concentrate knowing that not all of the students are in the same learning environment.	2.85	Moderate
4.	I find it easy to communicate with students that are physically present and students online at the same time.	3.12	Moderate
5.	I find it valuable to be able to stream into class even when I could not physically attend.	3.05	Moderate
6.	I find it effective to have a classroom with video cameras and microphones in a HyFlex learning environment.	3.01	Moderate
7.	I find it valuable setting up camera views which give remote students a sense of participating in the class.	3.05	Moderate
8.	I find it valuable to have all learning materials/resources be accessible for all students, regardless of their preferred participation mode.	3.33	High
9.	I find it effective having screens, which are live-streaming remote students, placed in the classroom at an angle that enables easy view for the instructor and peers.	3.15	Moderate

	Mean	Verbal Interpretation
10. *I find it necessary to have pre-class instructions to students to minimize the chance that class time is wasted managing confusion about how to engage.*	*3.18*	*Moderate*
GENERAL WEIGHTED MEAN	**3.08**	**Moderate**

Table 9 shows the level of readiness of the students in HyFlex learning in terms of the learning environment. As shown in the table, the following findings are presented: (1) with a mean of 3.33, the students reveal a high level of readiness in terms of the accessibility of all the learning materials/resources to all the students, regardless of their preferred participation mode; (2) with a mean of 2.85, which is the lowest, the students reveal a moderate level of readiness in terms of the ability to concentrate knowing that not all of the students are in the same learning environment; and (3) the general weighted mean of 3.08 reveals a moderate level of readiness of the students in HyFlex learning in terms of the learning environment.

Michael Koskinen's (2018) exploratory case study of a HyFlex learning environment can be used to assist this. Koskinen (2018) reports that participants cited the HyFlex course's flexibility as its primary advantage, finding it appealing to have the option to attend classes according to their preference for attendance. Given that the study's findings indicate that students are only moderately prepared to use HyFlex learning in terms of the learning environment, a number of steps, including giving students clear instructions on how to interact with the three different learning modalities, are necessary to make the most of the learning environment.

2.2 Assessment Procedures

Table 10. Level of Readiness in Terms of Assessment Procedures

Assessment Procedures	Mean	Verbal Interpretation
11. *I find it convenient for learners to choose which mode of engagement works best for them.*	*3.38*	*High*
12. *I find it convenient to be assessed within the same testing environment as the others.*	*3.21*	*Moderate*
13. *I find it convenient to be assessed using same sets of tests/exams through printed materials and online learning platforms (for in-person and online) administered at the same time.*	*3.29*	*High*
14. *I find it more effective taking quizzes at the end of each session rather than at the end of the whole unit/lesson.*	*3.39*	*High*
15. *I am comfortable answering open-ended questions during class regardless of the learning modality.*	*3.13*	*Moderate*
16. *I find it necessary having clear instructions to in-person and remote learners, learning activities, and to debrief of those activities.*	*3.37*	*High*

Assessment Procedures	Mean	Verbal Interpretation
17. I find it valuable to have activities that create a sense of belonging and motivation among all students, whether or not we are in the same room or on the same screen.	3.36	High
18. I find it necessary to have explicit written directives during class activities to minimize the chance that class time is wasted due to confusion about how to engage.	3.20	Moderate
19. I find it more engaging to use an application (Kahoot, Quizizz, etc.) during formative assessments for both remote and in-person students.	3.17	Moderate
20. I find it valuable to be provided with detailed feedback on assignments and exams, in synchronous online format, through facilitation, guidance, and progress assessment.	3.31	High
GENERAL WEIGHTED MEAN	**3.28**	**High**

Table 10 shows the level of readiness of the students in HyFlex learning in terms of the assessment procedures. As shown in the table, the following findings are presented: (1) with a mean of 3.39, the students reveal a high level of readiness in terms of the effectiveness of taking quizzes at the end of each session rather than at the end of the whole unit/lesson; (2) with a mean of 3.13, which is the lowest, the students reveal a moderate level of readiness in terms of the comfortability answering open-ended questions during class regardless of the learning modality; and (3) the general weighted mean of 3.28 reveals a high level of readiness of the students in HyFlex learning in terms of the assessment procedures.

Koskinen (2018) found that students preferred in-person interactions and real-time answers to inquiries, making in-person training preferable to online sessions. Findings, however, point to a decrease in both their communication and engagement chances in virtual learning environments. However, a number of measures could be suggested, like offering resources and apparatus that would enable educational stakeholders to interact efficiently irrespective of the mode of instruction.

2.3 Technicality

Table 11. Level of Readiness in Terms of Technicality

Technicality	Mean	Verbal Interpretation
21. I have access to technologies and resources needed for engagement in HyFlex learning.	3.19	Moderate
22. I am familiar with the different online learning platforms, materials, and organization of the course environment.	3.21	Moderate

Technicality	Mean	Verbal Interpretation
23. I am familiar with the tools and equipment needed in a HyFlex course.	3.10	Moderate
24. I have experience in using Zoom and Google Meet during class sessions.	3.57	High
25. I find it more engaging to have video equipment in classrooms to allow online viewers to experience learning more as those in the classroom do.	3.19	Moderate
26. I find it necessary to have a 24/7 help desk for students and faculty during the HyFlex course.	3.14	Moderate
27. I find it valuable to have video-recordings of the lectures for each session which are accessible for all the students regardless of the learning modality.	3.25	Moderate
28. I find it necessary to have all learning materials or resources be accessible across the three learning modalities.	3.40	High
29. I am familiar with a tool that have the capacity to support learning through both asynchronous and synchronous opportunities for communication and interactivity.	3.31	High
30. I am familiar with a tool that allow students to communicate through different channels (audio, visual, text) which provides flexible engagement.	3.35	High
GENERAL WEIGHTED MEAN	**3.27**	**High**

Table 11 shows the level of readiness of the students in HyFlex learning in terms of the technicality. As shown in the table, the following findings are presented: (1) with a mean of 3.57, the students reveal a high level of readiness in terms of the experiences in using Zoom and Google Meet during class sessions; (2) with a mean of 3.40, the students reveal a high level of readiness in terms of the necessity of having all learning materials/resources accessible across the three learning modalities; (3) with a mean of 3.35, the students reveal a high level of readiness in terms of the familiarity with a tool that allows students to communicate through different channels which provides flexible engagement; (4) with a mean of 3.14, the students reveal a moderate level of readiness in terms of the necessity of having a 24/7 help desk for students and faculty during the HyFlex course; (5) with a mean of 3.10, which is the lowest, the students reveal a moderate level of readiness in terms of the familiarity with the tools and equipment needed in a HyFlex course; and (6) the general weighted mean of 3.27 reveals a high level of readiness of the students in HyFlex learning in terms of technicality.

The majority of students valued the HyFlex style of delivery, according to Binnewies and Wang's (2019) study on the difficulties with student equality and involvement in HyFlex courses. Although their strategy proved successful, it was somewhat limited by the technology at hand. The current study's findings indicate that, given the widespread use of technology in the classroom these days, students are technically well-prepared to participate in a HyFlex course.

b. Teacher-Respondents

2.1 Learning Environment

Table 12. Level of Readiness in Terms of Learning Environment

	Learning Environment	Mean	Verbal Interpretation
1.	I am able to attend to the challenge of distance learning where students are separated by geographic proximity.	3.35	High
2.	I am comfortable having online and face-to-face classes, both at the same time.	3.15	Moderate
3.	I find it easy to concentrate knowing that not all of the students are in the same learning environment.	2.95	Moderate
4.	I find it easy to communicate with students that are physically present and students online at the same time.	2.90	Moderate
5.	I find it valuable to be able to stream into class even when I could not physically attend.	2.90	Moderate
6.	I find it effective to have a classroom with video cameras and microphones in a HyFlex learning environment.	3.15	Moderate
7.	I find it valuable setting up camera views which give remote students a sense of participating in the class.	3.10	Moderate
8.	I find it valuable to have all learning materials/resources be accessible for all students, regardless of their preferred participation mode.	3.45	High
9.	I find it effective having screens, which are live-streaming remote students, placed in the classroom at an angle that enables easy view for the instructor and peers.	3.20	Moderate
10.	I find it necessary to have pre-class instructions to students to minimize the chance that class time is wasted managing confusion about how to engage.	3.25	Moderate
	GENERAL WEIGHTED MEAN	**3.14**	**Moderate**

Table 12 shows the level of readiness of the faculty members in HyFlex learning in terms of the learning environment. As shown in the table, the following findings are presented: (1) with a mean of 3.45, the faculty members reveal a high level of readiness in terms of the accessibility of all the learning materials/resources for all the students, regardless of their preferred participation mode; (2) with a mean of 3.35, the faculty members reveal a high level of readiness in terms of the ability to attend to the challenge of distance learning where students are separated by geographic proximity; (3) with a

mean of 3.25, the faculty members reveal a moderate level of readiness in terms of having pre-class instructions to students to minimize the chance that class time is wasted managing confusion about how to engage; (4) with a mean of 2.95, the faculty members reveal a moderate level of readiness in terms of the ability to concentrate knowing that not all of the students are in the same learning environment; and (5) the general weighted mean of 3.14 reveals a moderate level of readiness of the faculty members in HyFlex learning in terms of the learning environment.

A research by Enilda Hall and Caldeira Ripine (2021) that addresses the faculty members' assessed readiness to plan and carry out HyFlex training lends credence to these findings. Faculty members feel ready to engage in HyFlex instruction with competencies that are comparable to those needed for other instructional modalities, like in-person instruction, according to Hall & Ripine (2021).

The result of this present study reveals that the faculty members are prepared in a moderate extent in utilizing a HyFlex approach in terms of the learning environment. In line with this result, several actions may be proposed in order for the faculty members to achieve a high level of readiness to successfully maximize the learning environment.

2.2 Assessment Procedures

Table 13. Level of Readiness in Terms of Assessment Procedures

	Assessment Procedures	Mean	VI
11.	I find it convenient for learners to choose which mode of engagement works best for them.	3.25	Moderate
12.	I find it convenient assessing students within the same testing environment as the others.	3.20	Moderate
13.	I find it convenient assessing using same sets of tests/exams through printed materials and online learning platforms (for in-person and online) administered at the same time.	3.00	Moderate
14.	I find it more effective giving quizzes at the end of each session rather than at the end of the whole unit/lesson.	3.10	Moderate
15.	I am comfortable giving open-ended questions during class regardless of the learning modality.	3.40	High
16.	I find it necessary having clear instructions to in-person and remote learners, learning activities, and to debrief of those activities.	3.40	High
17.	I find it valuable to have activities that create a sense of belonging and motivation among all students, whether or not we are in the same room or on the same screen.	3.40	High
18.	I find it necessary to have explicit written directives during class activities to minimize the chance that class time is wasted due to confusion about how to engage.	3.40	High

Assessment Procedures	Mean	VI
19. I find it more engaging to use an application (Kahoot, Quizizz, etc.) during formative assessments for both remote and in-person students.	3.25	Moderate
20. I find it valuable to provide detailed feedback on assignments and exams, in synchronous online format, through facilitation, guidance, and progress assessment.	3.40	High
GENERAL WEIGHTED MEAN	**3.28**	**High**

Table 13 shows the level of readiness of the faculty members in HyFlex learning in terms of the assessment procedures. As shown in the table, the respondents obtained a mean of 3.40 for the following statements: (1) comfortability giving open-ended questions during class regardless of the learning modality; (2) having clear instructions to in-person and remote learners, learning activities, and to debrief of those activities; (3) having activities that create a sense of belonging and motivation among all students, whether or not they are in the same room or on the same screen; (4) having explicit written directives during class activities to minimize the chance that class time is wasted due to confusion about how to engage; and (5) providing detailed feedback on assignments and exams, in synchronous online format, through facilitation, guidance, and progress assessment, which reveal a high level of readiness. The general weighted mean of 3.28 shows that the faculty members have a high level of readiness in using HyFlex learning in terms of the assessment procedures.

Numerous scholars have discussed problems with students' attention spans and interactions with instructors in an online HyFlex scenario (Popov, 2009; Moore et al., 2017; Rogers et al., 2003). Faculty members voluntarily disclosed throughout this inquiry that they were only somewhat prepared for these HyFlex instruction competencies. This could potentially inspire them to seek out further professional development opportunities or better prepare for these competencies, which could otherwise be a barrier to effective implementation. These professional development opportunities, such as pre-training learning activities and videos, instructor-learner proactive communication before and after blended synchronous sessions, and equity of in-class activities and assessments, could help create healthy design habits that are more inclusive of all learners (synchronous or asynchronous) (Authors, 2017; Wang, Quek, & Hu, 2017).

2.3 Technicality

Table 14. Level of Readiness in Terms of Technicality

Technicality	Mean	Verbal Interpretation
21. I have access to technologies and resources needed for engagement in HyFlex learning.	3.20	Moderate
22. I am familiar with the different online learning platforms, materials, and organization of the course environment.	3.40	High
23. I am familiar with the tools and equipment needed in a HyFlex course.	3.20	Moderate
24. I have experience in using Zoom and Google Meet during class sessions.	3.60	High
25. I find it more engaging to have video equipment in classrooms to allow online viewers to experience learning more as those in the classroom do.	3.35	High
26. I find it necessary to have a 24/7 help desk for students and faculty during the HyFlex course.	2.85	Moderate
27. I find it valuable to have video-recordings of the lectures for each session which are accessible for all the students regardless of the learning modality.	3.30	High
28. I find it necessary to have all learning materials or resources be accessible across the three learning modalities.	3.25	Moderate
29. I am familiar with a tool that have the capacity to support learning through both asynchronous and synchronous opportunities for communication and interactivity.	3.25	Moderate
30. I am familiar with a tool that allow students to communicate through different channels (audio, visual, text) which provides flexible engagement.	3.25	Moderate
GENERAL WEIGHTED MEAN	**3.27**	**High**

Table 14 shows the level of readiness of the faculty members in HyFlex learning in terms of the technicality. As shown in the table, the following findings are presented: (1) with a mean of 3.60, the faculty members reveal a high level of readiness in terms of the experiences in using Zoom and Google Meet during class sessions; (2) with a mean of 3.40, the faculty members reveal a high level of readiness in terms of the familiarity with the different online learning platforms, materials, and organization of the course environment; (3) with a mean of 3.35, the faculty members reveal a high level of readiness in terms of having video equipment in classrooms to allow online viewers to experience learning more as those in the classroom do; (4) with a mean of 3.30, the faculty members reveal a high level of readiness in terms of having video-recordings of the lectures for each session which are accessible for all the students regardless of the learning modality; (5) with a mean of 2.85, which is the lowest, the faculty members

reveal a moderate level of readiness in terms of having a 24/7 help desk for students and faculty during the HyFlex course; and (6) the general weighted mean of 3.27 reveals a high level of readiness of the faculty members in HyFlex learning in terms of technicality.

The findings of the Hall & Ripine (2021) study demonstrate the range of educational strategies that educators take into account while designing their HyFlex classrooms. While some faculty members considered more conventional asynchronous methods, like using the Learning Management System (LMS), others thought of more inventive ways, like inquiry-based learning, virtual surveys, and video sessions, that would enable synchronous collaboration, communication, and active learning. These strategies resemble those found in the body of current work (Roseth et al., 2013; Bell et al., 2014). Based on the educational approaches that were discussed, it may also be inferred that faculty members considered ways to use discussion boards and pre-recorded movies to engage students in an asynchronous format outside of scheduled class sessions. Aiming to build a balance of didactic techniques and foster a sense of inclusion for students in both locations, some of these pedagogical approaches were addressed in the literature and implemented by faculty members who had previously devised and deployed HyFlex training (Wang et al., 2017).

3. Results of Test of Relationship
3.1 Student-Respondents

Table 15. Relationship Between the Students' Level of Content Knowledge and Level of Readiness in Using HyFlex Learning

		Content Knowledge Test							
		A'	Correlation	B'	Correlation	C'	Correlation	Total	Correlation
Readiness	A"	0.09	Negligible	0.71	High	0.03	Negligible	0.62	Moderate
		0.14		0.00		0.56		0.01	
	B"	0.01	Negligible	0.08	Negligible	0.06	Negligible	0.07	Negligible
		0.83		0.19		0.32		0.21	
	C"	-0.06	Negligible (negative)	0.07	Negligible	0.03	Negligible	0.03	Negligible
		0.28		0.27		0.59		0.66	
	Overall	0.02	Negligible	0.53	Moderate	0.05	Negligible	0.11	Negligible
		0.78		0.02		0.39		0.07	
Level of Significance (α) = 0.05									

Legend: A'– Learning Environment (Content Knowledge Test)
  B'– Assessment Procedures (Content Knowledge Test)
  C'– Technicality (Content Knowledge Test)
  A"– Learning Environment (Survey on Readiness)
  B"– Assessment Procedures (Survey on Readiness)
  C"– Technicality (Survey on Readiness)

Table 15 shows the relationship between the students' level of content knowledge and level of readiness in using HyFlex learning. The researchers used Pearson Product-Moment Correlation Coefficient in testing the significant relationship between the variables. As shown in the table above, the correlation between the assessment procedures (content knowledge test) and learning environment (survey on readiness) is high with r = 0.71, and has a P-value of 0.00 which is less than the level of significance ($\alpha = 0.05$). Therefore, there is a significant relationship between the level of content knowledge of the students in terms of assessment procedures and the level of readiness of the students in terms of the learning environment.

3.2 Teacher-Respondents

Table 16. Relationship Between the Faculty Members' Level of Content Knowledge and Level of Readiness in Using HyFlex Learning

		Content Knowledge Test							
		A'	Correlation	B'	Correlation	C'	Correlation	Total	Correlation
Survey	A"	0.02	Negligible	0.08	Negligible	0.08	Negligible	0.09	Negligible
		0.92		0.74		0.73		0.72	
	B"	-0.01	Negligible (negative)	0.28	Negligible	0.38	Low	0.30	Negligible
		0.97		0.23		0.10		0.20	
	C"	-0.04	Negligible (negative)	0.23	Negligible	0.30	Negligible	0.23	Negligible
		0.86		0.33		0.19		0.34	
	Overall	-0.01	Negligible (negative)	0.21	Negligible	0.27	Negligible	0.21	Negligible
		0.97		0.38		0.26		0.37	
Level of Significance (α) = 0.05									

Legend: A'– Learning Environment (Content Knowledge Test)
   B'– Assessment Procedures (Content Knowledge Test)
   C'– Technicality (Content Knowledge Test)
   A"– Learning Environment (Survey on Readiness)
   B"– Assessment Procedures (Survey on Readiness)
   C"– Technicality (Survey on Readiness)

Table 16 shows the relationship between the teachers' level of content knowledge and level of readiness in using HyFlex learning. As shown in the table above, the correlation between the variables ranges from negligible (0.00 – 0.30) to low (0.31 – 0.50) correlation. By using a 5% level of significance, the test reveals that there is no significant relationship between the faculty members' level of content knowledge and level of readiness in using HyFlex learning, since all of the P-values are greater than 0.05 (level of significance).

4. Actions to be Proposed Based on the Level of Content Knowledge and Level of Readiness of the Respondents in HyFlex Learning

The following actions may be proposed based on the content knowledge and readiness of the respondents in HyFlex learning:

a) Brief the students about how to engage in a HyFlex course by implementing symposiums and seminars, and encourage familiarity of the tools and equipment needed to successfully maximize the learning environment.

b) Establish technology-equipped classrooms capable of accommodating all the students regardless of their preferred participation mode.

c) Provide the necessary support and resources needed by the faculty members to successfully implement HyFlex learning using training, workshops, seminars, online tutorials, or webinars.

d) Become proficient in the teaching and learning process in a HyFlex setting by getting to know all of the resources, equipment, and layout of the classroom.

e) Combine several pedagogical techniques, including content sharing through the learning management system (LMS), synchronous video sessions, online discussion boards, interactive student activities, learner-centered methodologies, inquiry-based approaches, and pre-recorded lectures and videos.

f) Recognize certain intricacies and potentially expensive elements before implementing them, such as design support teams, instructional technology, professional development materials, and the evaluation of policies and procedures to guarantee sufficient and satisfying learning opportunities for students and teachers.

Conclusions & Recommendations

3.3   Conclusions

Students and faculty are well-versed in HyFlex learning due to its implementation during the pandemic. Both groups have acquired knowledge and familiarity with online assessment strategies, as well as the technology used in education. The students and faculty members are somewhat prepared for a HyFlex course in terms of the learning environment due to their limited experience with different learning modalities. However, they are well-prepared in terms of assessment procedures and technical skills, as they have knowledge of various assessment strategies and are familiar with integrating technology in the classroom. The content knowledge of students and their readiness in the learning environment are closely connected and should be taken into account during assessments. However, there is no significant relationship between the content knowledge and readiness of faculty members in HyFlex learning. Therefore, a larger population should be considered for the study.

3.4   Recommendations

School administration should provide a learning management system, as well as technology-equipped classrooms, materials, and equipment, capable of accommodating

both online and in-person students. For the students, faculty, and parents, educational institutions should conduct seminars and symposiums regarding the challenges and costs of implementing HyFlex learning. Future researchers may consider conducting an exploratory study about HyFlex learning through pilot-testing within a certain educational institution; assess the learning outcomes after the implementation of HyFlex learning.

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