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Towards the Preparation of Modified HyFlex Learning Scheme: The Case of University Agriculture Courses in the Philippines

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The Hybrid-Flexible (HyFlex) learning delivery provides a student-directed multi-modal learning experience that optimizes students' engagement and technological competencies needed in the present society. This descriptive-developmental research utilized archival documents and surveys to look into the capacity of the institution's existing instructional resources as inputs for designing a HyFlex learning scheme. There were a total of 979 student-respondents involved through convenience sampling ensuring representations among the agriculture course offerings of the Sorsogon State University, Philippines. The survey was conducted either face-to-face or online with the use of Google Forms and found that students who utilized technological devices with good internet connection preferred a mixture of online with face-to-face learning (~50%) for the lecture subjects. On the other hand, the agriculture students (>60%) preferred the face-to-face set-up for the major subjects regardless of the type of technological devices and the internet connectivity speed. The upgrading and re-upgrading of the human, physical facilities, and library instructional resources for the HyFlex classes are needed to further comply with the flexible learning scheme requirements in the University's agriculture programs attuned with the Philippines' Commission on Higher Education (CHED) Policies, Standards and Guidelines (PSG).

Keywords: HyFlex learning scheme, general education, instructional resources, human resources, technological competence, agriculture courses

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INTRODUCTION

As the fourth industrial revolution penetrated every aspect of peoples' lives in our society (Xu et al, 2018; Schwab, 2017), adoption to modernized technologies became inevitable to make socio-economic activities easier while considering the local needs and resources. Movement in the education sector is not an exemption where the twenty-first century students are exposed to this current development such as advancement in information and communication technology, increased connectivity, and digital interaction.

The worldwide pandemic phenomenon brought about by the corona virus disease (COVID-19) has strengthened Higher Education Institutions (HEIs) adoption of more innovative teaching-learning approaches in different field of specialization through the use of synchronous and/or asynchronous online distance learning (ODL) modalities (Nalaka, et al, 2023) with the consideration of students' capabilities and available learning resources in the locality. This study is adjunct on the Sustainable Development Goal 4 (SDG 4) on providing access to quality, inclusive and equitable education for the promotion of lifelong learning opportunities for higher education by reducing teaching-learning resource barriers.

The unprecedented health crisis enabled a great leap from traditional or conventional modes of teaching-learning to more flexible modalities at different levels of education. Specifically, the HEIs in the Philippines have explored different modalities in the implementation of flexible ODL schemes among offered courses including the agriculture curricular program in consideration of the school's available resources and the capabilities of the students. The implementation of the flexible learning scheme as an educational reform in the Philippines has been intensified through the issuances by the Commission on Higher Education (CHED) Memorandum Order 4, series of 2020.

Many educational institutions in the Philippines including the Sorsogon State University (SorSU) have adopted a hybrid learning educational model that encourages students to attend either in-person classes or virtual classes according to the capabilities of the learners and teachers. Paired with larger class sizes, it was evident that students preferred having online activities but also appreciated additional learning during face-to-face classes (Eliveria et al, 2019). The need for assessing existing instructional resources such as the library resources, physical facilities, and human resources together with the students' adoption capacities for hybrid classes are necessary to provide an excellent teaching-learning experience for the learners. This hybrid educational set-up directs towards retrofitting and maximizing the use of existing state-of-the-art teaching-learning facilities to ensure globally competitive graduates of Bachelor of Science in Agriculture (BSA) courses in the Philippines.

It was experienced that ODL modalities during the COVID-19 pandemic have been a challenge among the administrators, faculty members, and students of the agricultural programs at SorSU in the Province of Sorsogon, Philippines. The inaccessibility to the appropriate quality learning resources and internet infrastructures (Fadhilah & Husin, 2023; Dio et al, 2023) during the ODL affected the teaching-learning process and student engagement. The documented struggles of teachers and students on the use of

digital and modern technologies delimits teaching-learning activities interaction (Huong et al, 2023), increased anxiety level and mental health concerns (Salame et al, 2023; Shahibi, 2017) which affirms the significant association between the use of state-of-the-art learning facilities and students' ODL-based academic achievement.

The hybrid-flexible (HyFlex) learning modality combines online and face-to-face instruction (Romero-Hall & Ripine, 2021) while respecting students' choice of how they will participate based on their capabilities and available learning resources. This learning modality implements flexible participation of students where they may choose (weekly) to attend face-to-face synchronous class sessions or complete synchronous online learning without the physical presence (Beatty, 2007). To cater the different learning preferences of students requires technology enabling environment and institutional policy support (Dey, 2022) that will sustain quality of delivery of a hybrid classes.

Mossavar-Rahmani & Larson-Daugherty (2007) have enumerated the following as a guide for the successful implementation of a hybrid learning scheme which includes the establish policy and procedures, preparations before the first meeting, dividing class activities between face-to-face and online format, among others. The HyFlex learning may be made more efficient when given variation and flexible mode of learning delivery either for the online or face to face (Kohnke & Moorhouse, 2021) that maximizes students 21st century skills congruent to their learning style preferences.

Envisioning to become a Center of Excellence in Agriculture in the province of Sorsogon, the offering of the degree programs adhered to the Policies, Standards and Guidelines (PSGs) set by the CHED (CMO 14, s. 2008; CMO 48, 2007) with available infrastructures that cater the ODL modalities. There are field laboratories utilized for instructions in the agriculture campus of the university which include the arboretum, rice field, area for high value crop production, nursery, greenhouses, vermicomposting, piggery, pasture areas, and poultry house available for the 1,638 new and returning students of the AY 2022 -2023.

It is therefore imperative to assess the hybrid-flexible teaching-learning scheme capacities of each educational institution while adhering to the set PSGs of CHED among the agriculture courses as the future of instruction among the Philippine HEIs. It is with this that the Anytime Anywhere Learning concept and initiative are most applicable. The current study is strengthened by the Humanistic Learning Theory (Juita & Yusmaridi, 2021) where the learning environment is made available and equal to all students that cater to their special needs. The HyFlex Classroom scheme provides same quality of education among learners anchored on Vygotsky's Social Learning Theory that creates an environment where direct and guided instruction occurs (Neff, 2020). This investigation is also guided by the first knowledge triangle (KT) concept on the interaction between research, education, and innovation (Unger & Polt, 2017) as the key drivers in the generation of a hybrid flexible (HyFlex) model that will offer classroom-based and online options among students.

Objectives

This investigation determined the existing available instructional resources utilized by the students as inputs in designing a HyFlex learning scheme in agriculture courses. The following are the specific objectives: (1) Determine the existing instructional resources of the university in terms of human resources, library, and physical facilities;(2) Identify the learning resources utilized by agriculture students for the ODL; and (3) Design HyFlex learning model for the future of instruction of the University.

METHOD

Research Design

This research employed a descriptive-developmental design that utilized archival documents and surveys in data gathering. The archival documents included the data on instructional resources which include faculty complement, library resources, and teaching-learning physical facilities. The participants involved in the survey on the utilized modern learning resources were the regular students of Bachelor of Agricultural Technology (BAT) and Bachelor of Science in Agriculture (BSAg) programs from first year to fourth year at Sorsogon State University.

The Respondents

The convenience sampling design was adopted in this investigation involving BSAg and BAT students for the first semester of A.Y. 2022-2023 as respondents who were available and willingly participated during the conduct of the survey. The study ensured that each agriculture curricular program including the field of specialization offered and subjected in this investigation is represented by the student participants as shown in Table 1. There were a total of 979 student-respondents who participated in the survey, 585 or 59.8% of them were BSAg and 394 or 40.2% were BAT.

Table 1
The respondents

Program	Year Level				Total	Percent
	1st	2nd	3rd	4th		
BSAg	297	92	66	130	585	59.8%
Animal Science	(100)	(27)	(18)	(17)	(162)	(16.6%)
Agri. Education	(94)	(46)	(28)	(70)	(238)	(24.3%)
Crop Science	(103)	(19)	(20)	(43)	(185)	(18.9%)
BAT	187	26	92	89	394	40.2%
Total	484	118	158	219	979	100%

The questionnaire for the conduct of the survey to student participants was initially drafted by the research team with the intent of determining the student's access to different technological devices, the type of networking technologies, and learning modality preference. The technological devices in the questionnaire include smartphones, desktop computers, laptops, and tablets. The types of networking technologies include ethernet (wired connections), mobile data, WiFi (wireless

connection), and piso net. The student learning modality preferences include options on the ratio of online to face-to-face learning from completely online, mostly online, half online with half face-to-face, mostly face-to-face, and completely face-to-face. All of these are in multiple-response format and have been translated both in hard copy and into Google form whichever is preferred by the student respondents. Before the actual conduct of the survey, the questionnaire was subjected to a series of reviews and content validation by the research team and senior faculty experts to ensure its alignment with the objectives of the study.

Data Collection and Analysis

The researchers used the archival documents and other existing references to generate data on learning resources along the human, library holdings, and physical facilities. The archival documents included the latest campus development plan, student enrolment data, teacher's program, class program, classroom utilization, curriculum outline of the program of study, and e-resources were requested from the concerned offices. The PSGs for the BSAg program (CMO 14, s. 2008), and the PSGs for the BAT program (CMO 48, s. 2007) in the Philippines were utilized in the assessment of the current state of the learning resources.

On the other hand, the validated questionnaire for the conduct of the survey was translated to Google form and distributed per class for the whole month of October 2022. Prior to the administration of the questionnaire, permission to conduct the survey was requested from each of the program chairperson and disseminated the approval to all concerned faculty members. The retrieval of the data was set on November 15, 2022.

Data Analysis Procedures

The descriptive statistical tools such as frequency counts and ratios/percentages were utilized to determine the capacity of existing instructional resources vis-a-vis the student population. The modern learning resources utilized by students were presented in tabular form with the use of percentage.

The findings on the learning resource capabilities served as input in the conceptualization of the Hyflex teaching model. There were five brainstorming sessions: three face-to-face sessions, and two virtual sessions via Google Meet conducted in designing the future teaching-learning scheme as a springboard to the modern HyFlex teaching model.

FINDINGS AND DISCUSSIONS

Capacity of the Existing Agricultural Program Instructional Resources

*Human Resources***.** Table 2 presents the existing permanent and non-permanent faculty members for the general education courses (GEC) and the major courses, along with the required teaching load (number of units). Each GEC faculty member is required to have a minimum 21- units teaching load per semester while those teaching major subjects are required to have a minimum of 18-units teaching load per semester. The data in Table 2 shows the total number of units based on the enrolment for the first semester of AY

2022-2023 for the GEC and major courses of the BSAg and BAT vis-a-vis the faculty need.

Table 2
Existing human instructional resources vis-a-vis faculty need of the agricultural program

Courses	Freq.	Units	Total Units
General Education Courses			
Permanent Faculty	5	105	338
Additional Faculty Need	*11*	*233*	
BSAg Major Courses			
Animal Sci. Permanent Faculty	5	90	90
Animal Sci. Faculty Need	*3*	*0*	
Crop Sci. Permanent Faculty	4	72	90
Crop Sci. Faculty Need	*1*	*18*	
Agri. Educ. Permanent	0	0	142
Agri. Educ. Faculty Need	*5*	*142*	
BAT Major Courses			
Permanent Faculty	3	54	204
Additional Faculty Need	*8*	*150*	
Over-all			
Permanent Faculty	17	321	864
Additional Faculty Need	*28*	*543*	

Note: For 1st Semester, AY 2022-2023, there are a total of 19 permanent faculty members (5 for GEC, 12 for Major and 2 on study leave for major courses) while **25 faculty members** (9 for GEC and 16 for Major Courses) are under **non-permanent status** (COS/Temporary). For GEC, each faculty handles 21 units while for major courses, each faculty handles 18 units per semester.

It was noted that for GEC, 11 faculty members are needed in addition to the five existing permanent; while for BSAg Major in Animal Science, three faculty members are still needed in addition to the five existing where one is on study leave. The field of BSAg Crop Science still needs one additional faculty in addition to the four existing faculty members, two of which are Soil Science Majors. The BSAg Agriculture Education major has no existing permanent faculty members specializing in agriculture education; only affiliated faculty from crop science and/or animal science together with the education major faculty members serves as its core set of faculty members, hence five faculty members in this field are needed to suit the CHED PSG requirements.

The table also shows the total number of units offered per semester, thus representing the number of actual needed faculty members for both GEC and major courses. The data illustrates that some of the faculty members with related specialization were given teaching load for the other related courses. Every HEIs shall maintain sufficient number of faculty members in each curricular program offering and shall observe a healthy work schedule that will give the faculty member an ample time for productive instruction and perform other mandates of professional development, research and community extension services.

The most commonly cited reasons of faculty members for not taking part in available training were "conflict with work schedule" and "no incentives for participating in professional development". According to the study of McCoy and Taylor (2000), the way that a school organizes its schedule has significant ripple effects on the climate and culture of a school. The effect of the school schedule is especially important because school climate is one of the leading factors of teacher job satisfaction. This was also affirmed by Tentama and Pranungsari (2016) which revealed that teachers who are satisfied perform better at teaching, leading to higher achievement among students.

Library Resources. Table 3 shows the number of book titles available for specific subjects and fields as well as the availability of books to the number of students in the campus. Based on the released data of the College Librarian for School Year 2022-2023, there are 12 classifications of books available in the library, with a total number of 2001 titles and 4032 volumes for GE courses and a 1:9 book-to-student ratio inferring that some of the volumes are insufficient to accommodate all the students in the Campus thereby making use of the available E-resources, such as Gale, IG Lib, World Technologies and Philippine E-Journals offered by the library as shown in Table 4.

Table 3
Existing collection of general education book

Classification	No. of Titles	No. of Volumes	Ratio Estimate (Volume: Student)
Generalities	62	293	1:2
Philosophy & Psychology	65	201	1:3
Religion	10	10	1:62
Social Sciences	290	618	1:1
Languages	46	154	1:4
Natural Science & Mathematics	206	519	1:1
Technology (Applied Science)	942	1137	2:1
The Arts	29	68	1:9
Literature & Rhetoric	66	257	1:2
Geography & History	16	29	1:22
Filipiniana	86	369	1:2
Fiction	183	183	1:3
Overall	2001	4032	1:9

Among the existing collection of books, the Classification on Technology (Applied Science) is the most abundant to focus on the technological knowledge of agriculture students, with 942 titles and 1,137 volumes, and a book-to-student ratio of 2:1, it can accommodate the students at any given time. The study by Saeed et al (2018) revealed that libraries with sufficient and updated learning resources are important to increase students' interest.

Section 4(b) of the Philippine CMO No. 22, series of 2021 provides the minimum requirements for libraries, common to all programs, for newly established institutions, the start-up total library book collection shall be at least 3,000 titles, while in the granting of government recognition, the total book collection shall be at least 5,000

titles. These titles shall be in a combination of print and electronic formats. It implies that the campus library has met the minimum requirement set by CHED in accordance with the requirements on the library, however, it also shows that the physical books in the campus library cannot accommodate the increasing number of students. Considering the Hybrid learning scheme, it lessens the need of the physical books shifting the need for electronic sources (e-source) available for students' use.

Gale is a website that connects libraries to learning and learners to libraries, all of the E-materials from Gale are reviewed by a global network of scholars, subject-matter specialists, professionals and educators to have the most accurate and authentic e-resources. The World Technologies is a pioneering company in the field of technological advancements in education, where the main focus lies in publishing professional e-books for academic research libraries to educate and inform students, researchers and academicians with latest developments in particular fields. The Philippine E-journals, on the other hand, offers a collection of academic publications of different HEIs in different field of specialization.

Table 4
Existing library e-resources for the agricultural program

Website	Status	End-users
Gale	Accessible	All faculty and students
iG Lib	Inaccessible	Inaccessible
World Technologies	Accessible	All faculty and students
Philippine e-journal	Accessible	Limited access

The E-resources are files and documents which require the help of computers or smartphones to access (Kavithanjali, 2019) by anyone at any place to cater to the learning needs of students. Since the book-to-student ratio does not accommodate the increasing number of students and faculty, the addition of the available and accessible E-resources is vital in implementing the HyFlex mode of learning. Combined with the physical books in the library, the campus has access to over 4,000 collections of books and e-books to be used by the agriculture students.

Physical Facilities for Lecture and Laboratory Classes. The needed classrooms for both course types (Lecture/GEC and Laboratory/Major) is demonstrated in the Table 5 after maximized utilization of the existing classroom and laboratory facilities with the assumption that each block/section is utilizing the classroom according to the course type for instructional purposes.

Table 5
Physical facilities capacity of the agriculture campus

Course Type	No. of Blocks or Section	No. of Existing Classroom	No. of Existing Laboratories	Classroom Needs
Lecture: GE	14	14	0	0
Laboratory: Major	26	5	4	17
Crop Science	(4)	(1)	(1)	(2)
Animal Science	(4)	(1)	(1)	(2)
Agricultural Education	(6)	(1)	(1)	(4)
Agricultural Technology	(12)	(2)	(1)	(9)

The campus utilizes the existing 23 classrooms to accommodate all the students, but it turns out that only 1,150 of the 1,640 students could fit in those 23 classrooms that includes 19 lecture rooms and four laboratory rooms, which have a maximum capacity of 50 students per classroom. Lecture rooms include the 10 classrooms in Academic Building, four rooms in BAT Building, two rooms in AgriVet, and three available rooms in FTC (Farmers Training Center) Building; while for Laboratory Rooms, it includes two Science Laboratory, one Soil Laboratory, and one Meat Processing.

This suggests that the campus either needs at least 17 classrooms to accommodate all students in a face-to-face teaching-learning scheme. Of the 17 needed classrooms, two additional classrooms are needed for both Crop Science and Animal Science, four for Agricultural Education, and nine for Agricultural Technology in addition to the two existing classroom and one existing laboratories. The state of the campus's physical resources appears to be a pressing issue for both faculty and administrators. Due to an increase in enrollment rates, a deficit of physical facilities has been observed. It has been highlighted that physical facilities are a key component for facilitating and stimulating a learning program (Akomolafe & Adesua, 2016).

The data exemplifies that the future campus development plan of the institution shall reflect prioritization of the construction of laboratory facilities intended for the major courses of the agricultural programs rather than classroom construction. As stated by Okoro (2011), both public and private schools should receive as much funding as possible to guarantee that there are adequate physical facilities accessible to improve university outcomes. Saeed et al (2018) exemplifies that infrastructure and well-equipped classrooms are crucial for a good teaching and learning environment.

Online Learning Resources Utilized by Agriculture Students

Technological Devices Utilized. In Table 6, we will be examining the common technological devices utilized by SorSU's agriculture major students for Online Distance Learning (ODL) format. The data shows that almost all of the respondents (92.1%) use smartphone only with mobile data and/or Wi-Fi to access the internet. It also shows that a small percentage of students use laptops (0.8%) or desktops (0.4%) with Ethernet (Wired connection) to access the internet for ODL. This suggests that smartphones rather than laptop or desktop have become the primary means of accessing the internet for the teaching-learning purposes of the most of agriculture major students.

Table 6
Technological devices utilized by the agriculture students

Technological Devices	Course		Freq.	Percent
	BSAg	BAT		
Laptop	4	4	8	0.8%
Laptop, Smartphone	41	13	54	5.5%
Laptop, Smartphone, Tablet	0	1	1	0.1%
Laptop, Smartphone, Tablet, Desktop	1	1	2	0.2%
Smartphone	530	372	902	92.1%
Smartphone, Desktop	1	1	2	0.2%
Smartphone, Tablet	2	1	3	0.3%
Tablet	6	0	6	0.6%
No Technological Devices	0	1	1	0.1%
Total	585	394	979	100%

The data also shows that a small percentage of students use multiple devices to access the internet. For example, 5.5% of respondents use both a laptop and a smartphone, while 0.3% use a smartphone and a tablet. This indicates that some students may switch between different devices depending on their needs or the context of their work. The data also suggests that wired connections are not commonly used by students, possibly because they are less convenient than wireless connections. The instructors should be mindful of the variety of devices that students may use to access online resources, and to design their course and assignments with device compatibility in mind.

It is worth noting that only 0.1% of student respondents do not possess any technological device and use the Piso-net facilities to access the instructional materials and/or attend synchronous classes. This finding is statistically similar with the research conducted by Mariam et al (2018) who found out that 99.2% of the sample university students in Malaysia own a smartphone. This means that access to technology is nearly universal among students, which is an important consideration for instructors designing online courses or assignments. These are supported with the mobile learning theory (Keskin & Metcalf, 2011) which believes that smartphones/mobile phones contribute to student's academic success and improve the quality of instructional methods used.

Mobile data as the preferred way for students in accessing the internet may be linked to the push of the Philippine government different telecommunication companies in delivering faster internet connection for Filipinos by the end of 2022 (Crismundo, 2022). According to the report, the Philippines ranked 80 globally for mobile speeds and 43rd globally for fixed broadband speeds. The internet infrastructure in the country must be further improved in order to provide a wide range of facilities for the conduct of quality online instruction at any time anywhere the students are with the use of their existing technological devices. The instructors and students therefore should be aware and be mindful of the potential limitations of the internet speed and connectivity in the area when designing online courses or assigning online work.

Preferred Learning Modality. Though, almost all agriculture major students utilized technological devices with internet access for ODL, most of them still preferred face-to-

face instruction for Major courses (61.7% of 979) as shown in Table 7. Only 38.3% of the agriculture students preferred online or blended courses for the conduct of laboratory activities for the practical applications of the agriculture program.

Table 7
Preferred students' weekly learning modality for the gec and major courses

Preferred Weekly Learning Modality	Degree Programs		Total	Percent
	BSAg	BAT		
General Education Course				
Completely face-to-face	311	180	491	50.2%
Mostly face-to-face	147	115	262	26.8%
Half online, half face-to-face	57	50	107	10.9%
Mostly online	28	23	51	5.2%
Completely online	22	15	37	3.8%
No Preference	20	11	31	3.2%
Major Courses				
Completely face-to-face	228	376	604	61.7%
Mostly face-to-face	85	117	202	20.6%
Half online, half face-to-face	41	38	79	8.1%
Mostly online	17	18	35	3.6%
Completely online	9	20	29	3.0%
No Preference	14	16	30	3.1%

Meanwhile, students are more open to online instruction for GE courses: specifically, 49.8% of students preferred some variation of online or blended instructions. The data illustrates that preferences for course format may vary by course type (GE vs Major Courses). For example, a higher percentage of students prefer completely face-to-face instruction for Major courses, while a higher percentage of students prefer some form of online instruction for GE courses. This suggests that course instructors may need to be mindful of these preferences and adapt their teaching strategies accordingly in consonance to the principle of no one-size-fits-all approach to instruction. The instructor should offer a variety of teaching approaches with quality learning resources (Fadhilah & Husin, 2023) to meet the needs of divers types of learners for online learning.

Proposed HyFlex Learning Scheme for University Agriculture Courses

With reference to the 979 sample respondents who participated in the survey, the current blended instructions of the SorSU's agriculture courses requires additional 17 classrooms, 11 GEC faculty members, and 17 BSAg/BAT major faculty members to accommodate the needs of these agriculture major students who participated in the survey. Thus, the study is offering a HyFlex (Hybrid-Flexible) learning scheme in response to the mentioned concerns while considering the capability of the students in terms of their available learning resources and their instructional need for the GE and major subject courses.

Table 8
Comparison of the current blended learning set-up and the proposed HyFlex scheme

Course/Year	Sample (n)	Assigned Participants		No. of Block/s		Variance
		Online	Face-to-face	Current set-up	HyFlex Scheme	
GEC						
1st year	484	242	242	10	1	9
2nd year	118	59	59	3	1	[2]
Major Subjects						
BSAg						
2nd year	(92)	(46)	(46)	(2)	(2)	(0)
3rd year	66	33	33	2	2	0
4th year	130	65	65	3	2	1
BAT						
2nd year	(26)	(13)	(13)	(1)	(1)	(0)
3rd year	92	46	46	2	2	0
4th year	89	44	45	2	2	0
Total	979	489	490	22	12	10

Table 8 illustrates the comparison of the current blended learning set-up implemented by the university and the proposed HyFlex learning scheme in terms of the number of blocks/sections that can be derived given the number of enrollees per year level and the identified student-preferred learning modality by type of subject course: GE or major subjects. The proposed HyFlex learning scheme can reduce the identified 22 blocks/sections based on the sample agriculture major students to 12 blocks/sections only with a total variation of 10 blocks/sections. This illustration can maximize the utilization of the existing 14 GE classrooms and 5 laboratory rooms on the agriculture campus. Hence, the proposed scheme will be in response to the aforementioned concerns on the need for additional classrooms and faculty members while maximizing the utilization of available instructional resources and will benefit more the students.

The proposed HyFlex scheme shall have the following characteristics: (1) The hybrid synchronous learning format shall be held with online/ remote participants at the same time with face-to-face/ on-site participants on real-time basis, (2) Students shall choose whether they will attend online or onsite for the GEC and major subjects upon enrolment, (3) The synchronous lessons for GEC subjects shall be held simultaneously in a hybrid set-up for all enrolled students (if possible) for all blocks or section to save time, money, and effort for both faculty members and students, (4) All GEC subject synchronous classes shall be scheduled within the same day e.g. Tuesday-Thursday alternately scheduled with major courses e.g. Monday- Wednesday- Friday or vice-versa, (5) The laboratory and synchronous classes for agriculture major subjects shall be held in a flexible manner mostly at face-to-face format utilizing the techno-demonstration area, agriculture production facilities, among others for actual practice, (6) The faculty loading scheme shall still follow the student ratio of 1:40 equivalent to one-subject as a general rule whether for a large HyFlex class, e.g. a large class of 120 students may have equivalent to three subject teaching loads (9 units) with one preparation, and (7) The asynchronous activities may include recorded lectures during

the conduct of synchronous classes and video lessons in addition to readings, homework and quizzes.

The HyFlex learning model will be time efficient since it employs large class/combined class scheme (Huong et al, 2023). This scheme will be beneficial to faculty members and staff and it will provide training on advanced, digitalized and flexible teaching resources without sacrificing the quality of education. Attune with the value of learner choice, equivalency, reusability, and accessibility (Beatty, 2007), the HyFlex scheme can deliver a student-directed multi-modal learning experience. It is believed in our modern classrooms that effective learning does not just require a place where students can sit or where teachers can sit (Connor & Cavendish, 2020; Nalaka, et al, 2023).

The HyFlex model requires an amphitheater type of classroom which accommodates large audiences, at least 3 to 4 blocks/ sections, for synchronous hybrid classes. The existing electronic resources and learning facilities can contribute in providing excellent experiences for the conduct of HyFlex learning among students. The proposed HyFlex state-of-the-art facility will be a genesis to the province of Sorsogon, Philippines which responds to the call of the future of instruction among HEIs with the use of latest technology in the teaching learning process. This gender-responsive HyFlex facility will also adheres to the prescribed health and safety protocols and will be arrayed with the different improved modes of teaching from traditional, flexible and hybrid which hopes to provide an impact in producing globally competitive and values oriented leaders and professional.

CONCLUSIONS

The upgrading and re-upgrading of the human, physical and library instructional resources of the current set-up of flexible learning in the University's agricultural programs are needed to further comply with the Commission on Higher Education (CHED) Policies, Standards and Guidelines (PSG). The agriculture major student respondents in this investigation who utilized technological devices with good internet connection preferred HyFlex (Hybrid-Flexible) learning for the lecture subjects. On the other hand, they preferred the face-to-face set-up for the major subjects regardless of the type of technological devices and the internet connectivity speed. Hence, the choice of learning modality in any higher education institution (HEI) needs to consider the preferences of the students while optimizing the utilization of existing instructional resources.

The HyFlex learning model in consideration to the students' preferences was proposed to maximize the utilization of the existing instructional learning resources. The University's Land Used Development Plan (LUDIP) shall include features of the HyFlex learning facilities for the large class size hybrid set-up as the future of instruction. The construction of the university's new infrastructure projects shall concentrate on the provision of laboratories, a techno-demonstration area, and a production area for the agricultural products for students' actual practice needed by the industry.

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