

Perceived Impact on the Efficacy of Learning Modality Implemented During the COVID-19 Pandemic

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Abstract. During the onset of the COVID-19 pandemic, Bohol Island State University (BISU) adopted flexible learning models, including modular and online approaches, to maintain continuity of instruction. Institutions have mainly embraced these, but they still lack scientific evidence on the effectiveness they can generate, especially in the field of the Fisheries Program and its affiliated areas. This study fills the gap by examining the relationship between learning modality effects and student-faculty performance in the Fisheries Program at BISU-Candijay and Calape Campuses for the 2020-2021 academic year. A guided questionnaire was used to assess key constructs, including Basic Communication Skills, Access to the Internet, Ability to Work Independently, Time Management Skills, and Attitude Towards Online Learning. The results indicated that the learning modalities of BISU were seen as moderately effective by instructors and students. The instructors considered Basic Communication Skills to be the best-performing construct, followed by the Ability to Work Independently, Time Management Skills, Attitude Towards Online Education, and Access to the Internet. Similarly, Basic Communication Skills received the most favorable rating among students, trailed by Attitude Towards Online Education, Ability to Work Independently, Access to the Internet, and Time Management Skills. Hence, the research suggests initiating intervention measures to bolster the lowest-ranked constructs, namely Access to the Internet and Time Management Skills, for the improvement of overall competence in flexible learning modalities at the Fisheries Program. This study contributes to the body of pandemic-era school policy literature and provides practical recommendations on how to foster flexible learning structures in similar settings.

Keywords: Faculty performance; Learning modality; Pandemic; Modular learning; Online learning.

1.0 Introduction

The emergence of Coronavirus disease 2019 (COVID-19) brought unprecedented disruptions to the lives of people worldwide. Travel restrictions (Chinazzi et al., 2020), school closures (Viner et al., 2020), global economic stagnation (Fernandes, 2020), political disputes (Barrios & Hochberg, 2020), prejudice (Habibi et al., 2020), and misinformation and scandals (Habibi et al., 2020) are all consequences of this crisis (Enitan et al., 2020). In the Philippines, with the lockdown, community quarantine, and the implementation of the Commission on Higher Education's Advisory No. 7, suspending face-to-face classes, the education sector became one of the most affected sectors. Higher education institutions struggle with the continuity of learning and providing quality education to the 28 million learners in the country (Tria, 2020).

In response to this situation, the Commission on Higher Education (CHED) created and released CHED Memorandum Order No. 04 Series of 2020 entitled "Guidelines on the Implementation of Flexible Learning", which provides clear guidelines for exploring other innovative learning modalities such as flexible learning. As

learners differ in terms of time, speed, and location, these options enable the customization of delivery modes that cater to the student's need for access to quality education. Flexible learning shall also allow students to choose the most convenient delivery mode as early as their enrollment.

At Bohol Island State University, particularly in Candijay and Calape, students have a choice between traditional module learning platforms, where they mainly rely on the module for learning, and web-facilitated learning platforms, which allow students to learn in both modules and online, such as Google Classroom, Facebook, and Edmodo. Implementing this learning system posed different risks, problems, challenges, and advantages to both faculty and students. In the study by Wiratomo and Mulyatna (2020), they found that faculties struggle to adopt the so-called "new normal" learning as circumstances force them to transition. Students, too, feel the same due to a disconnected relationship between students and faculties. However, in some studies, it has been observed that e-learning, facilitated by the web, has a positive impact on both teachers and students (Elfaki et al., 2019). Accordingly, both experience flexibility of access from different locations and ease of access to materials. It also reduces costs, saves time, and enhances students' academic performance.

Previous studies have identified the limitations and potential of flexible learning models, including connectivity issues with the internet, time management, and independent work capabilities (Smith et al., 2020; Johnson & Lee, 2021). The present study has failed to effectively identify the unique dynamics of fisheries training, where experiential learning and skill development are essential components of the training program. By incorporating these findings into the discussion, this study provides a more nuanced explanation of the influence of flexible learning modalities on students and teachers in a specialist educational environment. In the case of Bohol Island State University, this is still to be seen. This research is therefore being conducted to determine the efficacy of the learning modality implemented by BISU during the pandemic.

2.0 Methodology

2.1 Research Design

The study employed a quantitative approach, utilizing a modified research instrument that had undergone pilot testing. To achieve the objectives of the study, links of the questionnaires with integrated consent in Google forms were given to the faculty and students who were teaching and enrolled in the Bachelor of Science of Fisheries and its allied field for the school year 2020-2021. Documentary analysis was also employed in this study to assess the performance of both faculty and students.

2.2 Research Locale

This study was conducted at the Bohol Island State University (BISU) Candijay and Calape Campuses. BISU-Candijay is located in Barangay Cogtong, 5.1 km away from the Poblacion of Candijay. BISU-Calape, on the other hand, is located in Barangay Calunasan, which is 3.3 km away from the Poblacion of Calape. BISU-Candijay currently has eleven programs, while BISU-Calape has ten. Both offer a Bachelor of Science in Fisheries (BSF) program. BISU-Candijay also offers programs related to the BSF, such as a Bachelor of Science in Marine Biology and a Bachelor of Science in Environmental Science with a major in Coastal Resource Management. BISU-Candijay and BISU-Calape utilized module- and web-facilitated learning platforms in this new normal.

2.3 Research Participants

The respondents of this study consisted of faculty and students from the College of Fisheries and Marine Sciences at BISU-Candijay and the College of Technology and Allied Sciences at BISU-Calape during the first semester of the 2020-2021 academic year. Specifically, the study included 20 purposively selected students and 469 purposively selected faculty members who were actively teaching or enrolled in Bachelor of Science in Fisheries (BSF) courses and its allied programs. These allied programs included a Bachelor of Science in Marine Biology (BSMB) and a Bachelor of Science in Environmental Science (BSES) with a major in Coastal Resource Management. The selection criteria ensured that only those currently engaged in teaching or enrolled in these programs were included, providing a focused and relevant sample for evaluating the efficacy of flexible learning modalities in fisheries and related disciplines.

2.4 Research Instrument

The questionnaire used in this study had two parts. The first part focused on the respondents' profiles, while the second part focused on the constructs. The BISU Campus Faculty Candijay 17 Calape 3 Total 20 second part had five constructs: basic communication skills, access to the internet, ability to work independently, time management skills, and attitude towards online education. The questions for each construct were adapted from Takahashi et al. (2006) and Ullah et al. (2017). The questionnaire used a four-item scale. A score of four (4) was defined as strongly agree – high learning platform efficacy, (3) agree - moderate learning platform efficacy, (2) disagree – low learning platform efficacy, and one (1) strongly disagree – very low learning efficacy (Table 3). However, since questions were adopted from different sources, pilot testing of the survey questionnaire was conducted prior to the study to identify questions that did not make sense to the respondents or problems that might lead to biased answers. After pilot testing, data were analyzed for reliability tests using SPSS software. Nine questions were deleted from the original proposed questionnaire to achieve a Cronbach's alpha value of .806.

2.5 Data Gathering Procedure

During the study, proper protocol routing was followed, and permissions were obtained from persons of authority. A formal letter addressed to the Dean and to the Vice President of the Academic Affairs of the University of Bohol was tendered to their respective offices to inform them of the commencement of this study. After this, a request letter was forwarded to the Campus Directors of Bohol Island State University (BISU) - Candijay and Calape Campuses, as well as to the President of BISU, to secure permission to distribute and administer the questionnaire to the faculty. Approved, the researcher provided a separate Google link form to the faculty and academic advisers for the students, allowing them to access the questionnaires. The latter was requested to upload the link online (i.e., Facebook Page, Google Classroom, Edmodo). The researchers also validated the respondents' answers. After this, the researcher requested the registrar's office of both campuses access the general weighted average (GWA) of the students enrolled last semester. The researchers also collected the faculty's numerical ratings from the faculty performance evaluation form used by BISU. This study had undergone ethical consideration and proofreading before submission for publication.

2.6 Ethical Considerations

Proper protocols were strictly followed during the data-gathering process to ensure that ethical guidelines and research standards were adhered to. Such a commitment to methodological rigor ensures the transparency of the study and validation of its results, thereby strengthening the credibility and reliability of the findings.

3.0 Results and Discussion

3.1 Profile of the Faculty and Student Respondents

Table 1 presents the profile of the faculty respondents in BISU-Candijay and Calape. The table shows that the most significant number of faculty respondents fell within the age range of 50-59 years old, with a frequency of 6 out of 20, or a percentage of 30%. This was followed by the age range of 20-29 and 30-39 years old with a frequency of 5. This means that most faculty members of Bohol Island State University handling the Bachelor of Science in Fisheries and its allied fields were in the desirable bracket and middle-aged adulthood stage. The number of male faculty members was higher than that of female faculty members (Table 1). Males reached a count of 11, which constituted 55% of the faculty respondents. At the same time, females had 9 counts or 45 % of the population. The result was not entirely surprising, as this field of science has long been dominated by males, mainly due to the stereotype that only men go to sea in their fishing boats (Siason, 2001). Forty-five percent (9) of the faculty respondents had worked in the instruction for 1-5 years (Table 4). This was followed by the faculty who served the academe for 6-31 years. This could be because many of the faculty had already retired and were replaced by newly hired ones.

Table 2 presents the age, sex, course, year level, campus, and mode of instruction used by the students of Bohol Island State University. Sixty-seven percent of the student respondents fell in the age range of 20-24, with 315 counts (Table 2). This is because most of these students were returnees and those who had passed the Alternative Learning System (ALS), taking the opportunity to return to school before the K to 12 program implementation, which required students to complete two additional years of high school before enrolling in college. Most of the students were female, comprising 305 respondents, or 65% of the total (Table 2). This result was opposite to what

is often expected. The dominance of females in this field could be attributed to the admission and retention policies, which are strictly implemented by other programs except for BSMB and BSES. The BSF course had a higher number of students enrolled compared to the other two programs. This could be due to two factors: 1) the only course open during the K to 12 transition, and 2) the availability of scholarships from government agencies.

Table 1 *Profile of the Faculty Respondents (n=20)*

Items	Frequency	Percentage (%)
Age		
20-29	5	25
30-39	5	25
40-49	3	15
50-59	6	30
60-70	1	5
Sex		
Male	11	55
Female	9	45
Length of Service		
<1	1	5
1-5	9	45
6-11	2	10
12-16	2	10
17-21	2	10
22-26	2	10
27-31	2	10
32-36	1	5
37-41	1	5

The highest number of students were in the First Year or Second Year Level (Table 2). This is due to the end of the K to 12 transition, during which BISU opens more classes for each year level. Most students enrolled used learning modules as their primary mode of instruction (61%). The student's preference for learning modules may be due to the following reasons: an unstable internet connection, the freedom to think and learn, and the freedom to access the module (Leow & Neo, 2014). Some students preferred online learning (23%) and a combination of online and learning modules (12%). Those who had access online utilized Facebook Messenger and page, Google Classroom, Google Meet, and Zoom.

Table 2. *Profile of the Student Respondent (n = 469)*

Items	Frequency	Percentage (%)
Age		
15-19	85	18
20-24	315	67
25-29	56	12
30-34	12	3
35-40	1	0
Sex		
Male	164	35
Female	305	65
Course		
<i>BSF</i>		
First Year	70	30
Second Year	52	22
Third Year	61	26
Fourth Year	51	22
<i>BSMB</i>		
First Year	21	18
Second Year	52	44
Third Year	44	38
<i>BSES</i>		
First Year	19	16
Second Year	55	47
Third Year	44	37
Mode of Instructions Utilized		
Learning Module	109	61
Online	74	23
Both	286	12

3.2 Faculty's Perception of Learning Modality Efficacy

The data in Table 3 shows that the Basic Communication Skills had a composite mean of 3.62, which can be interpreted as “Strongly Agree” and implies that in terms of communication skills, the mode of instruction utilized by the faculty had a high learning platform efficacy. Under Basic Communication Skills, the following items, mentioned according to their rank, had a Strongly Agree rating: I understand other person's level of commitment and training to provide appropriate support. ; I do keep communication confidential when requested, I do welcome conversation concerning group goals and objectives, I do encourage feedback and questions to ensure mutual understanding, and I do communicate at critical points to ensure understanding. There were also items rated as Agree, such as I use appropriate communication vehicles and brevity, followed by I do not send mixed messages by indicating one thing verbally and another non-verbally, and I do parrot or repeat comments to ensure understanding. Successful communication elicits improvement, motivates action, fosters comprehension, and conveys a specific concept or point of view to learners (Venu & Reddy, 2016).

Table 3. *Respondents' Perception on Learning Platform Efficacy (n = 489)*

Constructs	Faculty			Student		
	Mean	Interpretation	Rank	Mean	Interpretation	Rank
Basic Communication Skills	3.62	Agree	1	3.18	Agree	1
Access to the Internet	2.72	Agree	4	3.04	Agree	4
Ability to Work Independently	3.40	Agree	2	3.07	Agree	3
Time Management Skills	3.40	Agree	2	2.19	Agree	5
Attitude Towards Online Education	3.15	Agree	3	3.07	Agree	2

Four items in the Access to the Internet section were rated as “Agree” except for the “Disagree” rate on the “Subscription to the Internet” item (Table 3). Items rated with Agree, mentioned according to their rank, were the following: The internet access area at my house is in poor condition, Uploading or downloading a learning material in my home area is in poor condition, I find it hard to access the internet at home, and My home network does not support access to the information. Overall, in this construct, the faculty rated 2.72, which was equivalent to the “Agree” rating. This means that, in terms of internet connection, the mode of instruction utilized by the faculty had a moderate effect on learning platform efficacy. Access to the internet is crucial nowadays for ensuring inclusive and equal education and fostering opportunities for lifelong learning (Public Policy, 2017).

Two items on the Ability to Work Independently were rated by the faculty with “Agree” and one with “Strongly Agree” (Table 3). Items with an Agree rating were the following: I am self-motivated and self-disciplined, and I can work independently. An item with a “Strongly Agree” rating was, “I am self-motivated and self-disciplined.” Overall, the composite mean for this construct was 3.40 (Agree), indicating moderate learning platform efficacy. The faculty in BISU, with the mode of instruction they were using, can work independently, are self-disciplined, and are motivated to work.

In terms of time management, the faculty rated the item “I can get things done on time” with “Agree,” indicating moderate learning platform efficacy in this construct (Table 3). The constant check-ins conducted by the Director of Instructions, BISU System, Commission on Higher Education, accreditation agencies, and others have helped faculty members harness their time management skills.

Regarding their Attitude Towards Online Education, the faculty rated almost all items with “Agree” except for the “Strongly Agree” option on the “Slow computer and poor internet connections discouraged the use of online learning” item (Table 3). The following items had an Agree rating: It is difficult to favor online learning regularly due to the least face-to-face interaction among faculty and students; as a helpful program suggested for peers to utilize online learning for online learning materials, It is difficult to understand online learning without getting acquainted with appropriate guidance, and Using online learning makes learning enjoyable. Overall, this construct had a composite mean of 3.15, indicating moderate learning platform efficacy. The reason for this could be because most of the faculty had already tried teaching online during the pandemic and had already adopted this scheme. The findings of this study corroborate those of Lee et al. (2015), who found that the faculty's attitude toward online education shifted after training, teaching, or both. The Philippine government has been undertaking several educational initiatives, particularly in basic education, to ensure that Filipino students receive quality learning opportunities (Ampo, 2023).

The faculty received the highest rating for Basic Communication Skills, with a weighted mean of 3.62, followed by the ratings for Ability to Work Independently, Time Management Skills, Attitude Towards Online Education, and Access to the Internet. Similarly, the faculty received the highest rating in Basic Communication Skills. However, the weighted mean for this construct was lower compared to that of the faculty. Basic Communication Skills were followed by an Attitude Towards Online Education, the Ability to Work Independently, Access to the Internet, and Time Management Skills.

3.3 Relationship Between Faculty's Profile and Learning Modality Efficacy

Table 4 shows *p*-values greater than 0.05, indicating a margin of error. Hence, the null hypothesis was accepted. There was no significant relationship between faculty's age and Basic Communication Skills, Access to the Internet, Ability to Work Independently, Time Management skills, Attitude Towards Online Education, and Learning Platform Efficacy. Age did not influence Basic Communication Skills, Access to the Internet, Ability to Work Independently, Time Management skills, Attitude Towards Online Education, and Learning Platform Efficacy.

Table 4. *Relationship Between Faculty's Age and Learning Modality Efficacy*

Variables	X ²	df	p-value	Result	Decision
Age and Basic Communication Skills	120	119	0.45	Not significant	Ho: Accepted
Age and Access to the Internet	40.0	34	0.22	Not significant	Ho: Accepted
Age and Ability to Work Independently	17.9	17	0.39	Not significant	Ho: Accepted
Age and Time Management Skills	17.9	17	0.39	Not significant	Ho: Accepted
Age and Attitude Towards Online Education	37.2	34	0.32	Not significant	Ho: Accepted
Age and Learning Platform Efficacy	16.8	17	0.46	Not significant	Ho: Accepted

The lack of a relationship between age and Basic Communication Skills was not congruent with the findings of Caruso et al. (1995), who stated that typical aging is associated with subtle changes in communication skills due to physical health, depression, and cognitive decline. However, the findings in this study could be explained by those of Yorkston et al. (2010), who state that typical aging is associated with certain language skills remaining intact, such as vocabulary, grammatical judgment, and repetition ability.

The lack of influence of faculty age on Access to the Internet could be because the Internet is now used not only for educational purposes but also actively by faculty in their daily lives for social engagement. Conversely, the study's findings showed that regardless of faculty age, they can work independently. This may indicate that the faculty of BISU, in general, has a high quality of work, high productivity, and an enjoyable work environment (Converso et al., 2010). Age and Time Management Skills and Attitude Towards Online Education insignificant results could be associated with the fact that faculty had already adapted to the new normal working environment since they had already been introduced to this scheme last year, during the onset of the pandemic.

Table 5 shows *p*-values greater than 0.05, indicating a margin of error. Hence, the null hypothesis was accepted. There was no significant relationship between faculty's gender and Basic Communication Skills, Access to the Internet, Ability to Work Independently, Time Management skills, Attitude Towards Online Education, and Learning Platform Efficacy. This means that sex did not influence Basic Communication Skills, Access to the Internet, Ability to Work Independently, Time Management skills, Attitude Towards Online Education, or learning platform efficacy.

Table 6 shows *p*-values greater than 0.05, indicating a margin of error. Hence, the null hypothesis was accepted. There was no significant relationship between faculty's length of service and Basic Communication Skills, Access to the Internet, Ability to Work Independently, Time Management Skills, Attitude Towards Online Education, and Learning Platform Efficacy. This is because all of the faculty started using the learning platforms at the same time.

Table 5. Relationship Between Faculty's Sex and Learning Modality Efficacy

Variables	X ²	df	p-value	Result	Decision
Sex and Basic Communication Skills	4.71	7	0.69	Not significant	Ho: Accepted
Sex and Access to the Internet	0.30	2	0.86	Not significant	Ho: Accepted
Sex and Ability to Work Independently	0.30	1	0.58	Not significant	Ho: Accepted
Sex and Time Management Skills	0.30	1	0.58	Not significant	Ho: Accepted
Sex and Attitude Towards Online Education	1.30	2	0.52	Not significant	Ho: Accepted
Sex and Learning Platform Efficacy	0.05	1	0.82	Not significant	Ho: Accepted

Table 6. Relationship Between Faculty's Length of Service and Learning Modality Efficacy

Variables	X ²	df	p-value	Result	Decision
Length of Service and Basic Communication Skills	115	105	0.24	Not significant	Ho: Accepted
Length of Service and Access to the Internet	34.1	30	0.27	Not significant	Ho: Accepted
Length of Service and Ability to Work Independently	13.0	15	0.60	Not significant	Ho: Accepted
Length of Service and Time Management Skills	13.0	15	0.60	Not significant	Ho: Accepted
Length of Service and Attitude Towards Online Education	36.3	30	0.20	Not significant	Ho: Accepted
Length of Service and Learning Platform Efficacy	12.7	15	0.63	Not significant	Ho: Accepted

3.5 Relationship Between Student's Profile and Learning Modality Efficacy

Table 7 presents the Pearson Chi-square values and p-values, which are more significant than 0.05, indicating a margin of error. Hence, the null hypothesis was accepted. There was no significant relationship between student's age and Basic Communication Skills, Access to the Internet, Ability to Work Independently, Time Management skills, Attitude Towards Online Education, and Learning Platform Efficacy. The age of the students did not influence Basic Communication Skills, Access to the Internet, Ability to Work Independently, Time Management skills, Attitude Towards Online Education, and Learning Platform Efficacy.

Table 7. Relationship Between Students' Age and Learning Modality Efficacy

Variables	X ²	df	p-value	Result	Decision
Age and Basic Communication Skills	22.90	34	0.93	Not significant	Ho: Accepted
Age and Access to the Internet	40.14	51	0.86	Not significant	Ho: Accepted
Age and Ability to Work Independently	49.01	51	0.55	Not significant	Ho: Accepted
Age and Time Management Skills	38.31	51	0.91	Not significant	Ho: Accepted
Age and Attitude Towards Online Education	33.50	51	0.97	Not significant	Ho: Accepted
Age and Learning Platform Efficacy	44.79	51	0.72	Not significant	Ho: Accepted

Table 8 presents the p-values of Basic Communication Skills, Access to the Internet, Ability to Work Independently, Attitude Towards Online Education, and Learning Platform Efficacy, which are greater than the 0.05 margin of error. Hence, the null hypothesis of these variables was accepted. The sex of the students did not influence Basic Communication Skills, Access to the Internet, Ability to Work Independently, Attitude Towards Online Education, and Learning Platform Efficacy.

Table 8. Relationship Between Students' Sex and Learning Modality Efficacy

Variables	X ²	df	p-value	Result	Decision
Sex and Basic Communication Skills	6.67	4	0.15	Not significant	Ho: Accepted
Sex and Access to the Internet	4.61	6	0.60	Not significant	Ho: Accepted
Sex and Ability to Work Independently	2.31	6	0.89	Not significant	Ho: Accepted
Sex and Time Management Skills	473.33	8	0.05	Significant	Ho: Rejected
Sex and Attitude Towards Online Education	6.60	6	0.36	Not significant	Ho: Accepted
Sex and Learning Platform Efficacy	4.00	6	0.68	Not significant	Ho: Accepted

The *p*-value for Time Management Skills was less than 0.05, indicating a statistically significant difference (Table 10). Hence, the null hypothesis on this variable was rejected. There was a relationship between student's sex and time management skills. Female students were more likely to complete tasks on time compared to male students. These findings align with those of Misra and McKean (2000) and Chanpisut (2018), who found that females tend to have more effective time management skills than males. This may be because brain connections are more streamlined in females at an earlier age, which makes them more mature in certain cognitive and emotional areas (Chanpisut, 2018). Another reason may be that females spend more time on their studies, while many males spend more time on sports and leisure activities, such as playing sports, socializing with friends, and engaging in online gaming. Males could hardly prioritize the most important things they were required to do due to these distractions.

Table 9 presents the *p*-values of Basic Communication Skills, Access to the Internet, Ability to Work Independently, Attitude Towards Online Education, and Learning Platform Efficacy that are greater than the 0.05 margin of error. Hence, the null hypothesis of these variables was accepted. The course of the students did not influence Basic Communication Skills, Access to the Internet, Ability to Work Independently, Attitude Towards Online Education, and Learning Platform Efficacy.

Table 9. Relationship Between Students' Course and Learning Modality Efficacy

Variables	X ²	df	p-value	Result	Decision
Course and Basic Communication Skills	0.35	2	0.84	Not significant	Ho: Accepted
Course and Access to the Internet	0.95	3	0.81	Not significant	Ho: Accepted
Course and Ability to Work Independently	0.39	3	0.94	Not significant	Ho: Accepted
Course and Time Management Skills	470.00	4	0.05	Significant	Ho: Rejected
Course and Attitude Towards Online Education	0.28	3	0.97	Not significant	Ho: Accepted
Course and Learning Platform Efficacy	0.16	3	0.98	Not significant	Ho: Accepted

The *p*-value of Time Management Skills was less than 0.05, indicating a statistically significant difference (Table 11). Hence, the null hypothesis on this variable was rejected. There was a relationship between the student's course and time management skills. Students enrolled in the Bachelor of Science in Fisheries completed tasks on time, compared to the other two courses. This may be due to the large number of scholars enrolled in the BSF program and its admission policy.

Table 10 presents the *p*-values of Basic Communication Skills, Access to the Internet, Ability to Work Independently, Attitude Towards Online Education, and Learning Platform Efficacy that are greater than the 0.05 margin of error. Hence, the null hypothesis of these constructs was accepted. The year level of the students did not influence these constructs because all students used the same learning platform simultaneously during the onset of the pandemic.

Table 10. Relationship Between Students' Year Level and Learning Modality Efficacy

Variables	X ²	df	p-value	Result	Decision
Year Level and Basic Communication Skills	6.54	8	0.59	Not significant	Ho: Accepted
Year Level and Access to the Internet	8.18	12	0.77	Not significant	Ho: Accepted
Year Level and Ability to Work Independently	8.68	12	0.73	Not significant	Ho: Accepted
Year Level and Time Management Skills	478.16	16	0.05	Significant	Ho: Rejected
Year Level and Attitude Towards Online Education	12.33	12	0.42	Not significant	Ho: Accepted
Year Level and Learning Platform Efficacy	4.94	12	0.96	Not significant	Ho: Accepted

The *p*-value of Time Management Skills was less than 0.05, indicating a statistically significant difference. Hence, the null hypothesis on this variable was rejected. There was a relationship between student's year level and time management skills. The second-year students, followed by the third-year students, were most likely to finish their tasks on time compared to the first and fourth-year students.

Table 11 presents the *p*-values of Basic Communication Skills, Access to the Internet, Ability to Work Independently, Attitude Towards Online Education, and Learning Platform Efficacy that are greater than the 0.05 margin of error. Hence, the null hypothesis of these variables was accepted. The mode of instruction utilized by the students did not influence Basic Communication Skills, Access to the Internet, Ability to Work Independently, Attitude Towards Online Education, and Learning Platform Efficacy.

Table 11. Relationship Between Students' Mode of Instruction Utilized and Learning Modality Efficacy

Variables	X ²	df	p-value	Result	Decision
Mode of Instruction Utilized and Basic Communication Skills	6.44	6	0.38	Not significant	Ho: Accepted
Mode of Instruction Utilized and Access to the Internet	8.47	9	0.49	Not significant	Ho: Accepted
Mode of Instruction Utilized and Ability to Work Independently	1.47	9	1.00	Not significant	Ho: Accepted
Mode of Instruction Utilized and Time Management Skills	475.01	12	0.05	Significant	Ho: Rejected
Mode of Instruction Utilized and Attitude Towards Online Education	4.76	9	0.86	Not significant	Ho: Accepted
Mode of Instruction Utilized and Learning Platform Efficacy	16.28	9	0.06	Not significant	Ho: Accepted

The *p*-value for Time Management Skill in Table 11 was less than 0.05, indicating a statistically significant margin of error. Hence, the null hypothesis on this variable was rejected. A relationship existed between the mode of instruction used and time management skills. Those students who used both online and learning modules finished their tasks on time, compared to those who used only the learning modules or online resources. The reasons could be the freedom of learning they experienced during their module, the interaction and connectivity with their classmates and professors online, and the infinite access to knowledge and learning resources available online. Chen and Fu (2009) found that online searching helped students improve their exam results. When students used the internet, their opportunities for other types of engagement increased (Laird & Kuh, 2004).

The results of the study align with and expand the current literature on the effectiveness of flexible learning styles during the COVID-19 pandemic. The students' and scholars' perceived moderate effectiveness of the learning modes in BISU concurs with studies emphasizing the challenges and benefits involved in shifting towards online and modular learning systems. For example, Dhawan (2020) demonstrated a study where, although flexible

learning modes ensured continuity of learning during the pandemic, their performance was highly inconsistent, depending on internet connectivity, self-effort, and institutional support. Likewise, the moderate effectiveness noted in this study is also a reflection of the variable experiences reported elsewhere, where both the positive and negative aspects of online and modular learning have been documented (Rapanta et al., 2020).

The high ratings from students and teachers for Basic Communication Skills confirm that effective and clear communication is crucial in modular and online learning environments. This finding is consistent with research by Martin and Bolliger (2018), who discovered that communication was a significant predictor of student satisfaction and engagement in online courses. The capacity of faculty members to deliver instructions and students' ability to explain their issues in clear terms probably contributed to the perceived effectiveness of this construct. This necessitates that institutions consider providing communication facilitation training tools and skills to enhance the effectiveness of flexible learning systems.

The Ability to Work Independently was also rated very highly by faculty members, a finding that resonates with the literature highlighting the importance of self-directed learning in distance learning. According to Broadbent (2017), students who excel in self-regulation tend to perform optimally in online learning environments. However, the lower student rating suggests that some may struggle with the autonomy required in flexible learning options. This variation indicates that individualized support must be provided to enable students to acquire independent learning skills, especially in vocational subjects such as fishery and marine sciences, whose practice and experiential nature are the essence of the syllabus.

Time Management Skills scored average in both cohorts, which is characteristic of the standard issue in distance and module learning. Kauffman (2015) found in his research that time management is a significant issue among online students, often resulting in procrastination and stress. The moderate score here suggests that some teachers and students adapted, while others may require additional tools or approaches to manage their time effectively. Strategies such as systematic schedules, reminders, and time management workshops can help fill the gap.

The Attitude Towards Online Education construct was differently rated, with students rating it higher than the faculty. This outcome is consistent with the results of a study conducted by Sun and Chen (2016), which found that students' attitudes towards online learning were moderated by their experience and perceived effectiveness of the modality. The lower faculty rating might be a reflection of concern regarding the capacity of online instruction to deliver complex or lab-based material, especially in fields such as fisheries and marine sciences. This highlights the importance of professional development initiatives in supporting faculty transitions to and adoption of online teaching practices.

Access to the Internet was rated lowest by both students and teachers, in line with the challenges of the world during the pandemic. UNESCO (2020) noted that a lack of decent access to the Internet is the primary hindrance to efficient online learning, particularly in rural or disadvantaged communities. Poor performance in this study highlights the digital divide that still exists in places like Bohol, where infrastructure constraints may hinder the widespread implementation of flexible learning arrangements. This issue must be addressed through concerted efforts among schools, the state, and private sectors to expand internet coverage and increase affordability.

The results of this research corroborate the two-fold character of flexible learning modes as both potential and challenge in times of pandemics. Although the moderate effectiveness of BISU's learning modalities confirms that they can help maintain education amidst crisis, differential performance across constructs is a testament to areas for improvement. The extremely high rating of Basic Communication Skills and Ability to Work Independently indicates that these are skills that can be utilized to improve the overall quality of flexible learning. The reasonably low ratings of Access to the Internet and Time Management Skills, however, indicate fundamental obstacles to ensuring equal and practical education for all parties involved.

In summary, this research adds to the body of literature on flexible learning modes by shedding light on their application in specialized areas such as marine sciences and fisheries. The results highlight the need to overcome infrastructural constraints, enhance time management support, and foster positive attitudes towards distance

learning. By overcoming these barriers, institutions such as BISU can optimize the efficiency of their flexible learning systems and better prepare for future education disruptions.

4.0 Conclusion

The COVID-19 pandemic necessitated a sudden shift to modular and online learning, revealing the strengths and weaknesses of flexible learning modalities. The current study contributes to the body of knowledge on flexible learning by demonstrating its moderate success in technical courses, such as fisheries and marine sciences. While it was strong on essential communication and self-learning skills, weaknesses such as limited internet connectivity and inefficient time management weakened optimal achievements. To address these gaps, the university can offer internet subsidies to rural students and provide time management training to enhance learning effectiveness. These comply with UN Sustainable Development Goal 4, which aims to provide quality education towards inclusive and equitable learning. Future studies must investigate the long-term effects of flexible learning and the efficacy of customized interventions. Closing these gaps, BISU can enhance the quality of education and better prepare for the next wave of disruptions, ultimately enabling sustainable educational development.

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The principal author made all the parts of this manuscript.

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7.0 Conflict of Interests

The author declares no conflict of interest in this research.

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