

METHODS

Flexibility in learning management and technology preparedness among faculty members in higher education institutions

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Received: 06 April 2023; **Accepted:** 13 April 2023; **Published:** 27 April 2023

Faculty members were challenged to continue teaching beyond the traditional mode during the COVID-19 pandemic. Therefore, the research focused on the level of management functions and technological preparedness of the faculty members with permanent employment status under the business programs of higher education institutions (HEIs) in Nueva Vizcaya. The idea behind the research was drawn from the theories of planning, organizing, leading, and controlling and technology preparedness in terms of technology access, technology skills and literacy, and attitude toward technology. The study's findings revealed that faculty members have a high level of management and technology preparedness. Moreover, the study revealed that the profile of the faculty members had no relationship to their level of implementation of management strategies. On the other hand, younger faculty members have greater technology access and literacy skills. Furthermore, profiles were not a significant factor in their level of attitude toward technology. More results showed that when the level of implementation of management strategies is high, the result is also high in terms of technological preparedness. Based on the study's findings, the researcher recommended an enhanced program for better implementation of flexible learning in HEIs.

Keywords: flexible learning, technology preparedness, technology access, technology skills and literacy, attitude in technology

Introduction

Information (IT) is important for everyone. Using hardware and software, businesses can use IT to make sure that each department runs smoothly (1). Moreover, Information and Communication Technology (ICT) is an integration of IT that focuses on technologies that include wireless networks, the internet, cell phones, and other communication media. ICT has provided society with a large variety of new communication capabilities (2).

The advancement in ICT has paved the way for web applications, telecommunications, and mobile devices. It had affected lives by improving the distribution of information in a short period of time (3). These advancements inevitably changed the delivery and design of education.

It is used to support, enhance, and optimize the delivery of information in education. Studies have shown that the interactivity of students increased with the use of modern equipment, technology, and tools. Worldwide research shows that students who are continually exposed to technology in education have better knowledge, innovative capabilities, and presentation skills (4). To adapt to the changes in education, higher education institutions (HEIs) should continually look for innovative solutions to boost the learning delivery environment for faculty members and students (5).

One of these enhancements is the start of electronic learning, which utilizes computer network technology to provide information to individuals (6). It was also defined as a form of education with a technique of learning using different tools like computers, mobile devices, laptops, tablets, etc.,

on different platforms such as Facebook, Google, Email, an online library, YouTube, etc. (7). One of the different types of e-learning is called blended learning (8).

In various sources, blended learning is also called hybrid or mixed learning (8). It refers to the integration of online learnings with face to face classroom instructions to create flexible approaches in education while incorporating the advancements in technology (9). It is generally accepted across HEIs, with many students calling it the new normal in education (10). In other developed countries like the United States, the United Kingdom, and other Asian countries, blended learning is the most favored learning model because of its flexibility (11).

In relation to this, the Commission on Higher Education (CHED) has supported distance learning since 2002 with Republic Act 7722, also known as the Higher Education Act of 1994. Thus, several universities with traditional mode of learning also established e-learning degree programs such as Lyceum of the Philippines (LPU), De La Salle University (DLSU), and University of the Philippines Open University (UPOU). This showed that the impact of ICT in education is so strong that it is being observed in a developing country.

Furthermore, the technological advancements encouraged the development of new models for education, especially during COVID-19. This pandemic has infected many people around the world, including the Philippines, and has affected segments of society, especially the education sector, where many institutions were forced to close schools and offices because of the growing coronavirus outbreak. This also ensured limiting the interactions between people and slowing the spread of the virus while the healthcare system coped with the pandemic. Hence, other HEIs in the Philippines were also forced by circumstances to adapt different strategies to minimize the risk of possible transmission of the virus (12).

Because of the urgency in exploring other innovative learning modalities, HEIs were challenged in teaching and learning beyond the traditional mode of learning. Thus, on September 2, 2020, CHED issued Memorandum No. 04 Series of 2020, which contains recommendations for implementing flexible learning in higher education programs. According to CHED, flexible learning is a combination of non-digital and digital technology. This guideline helps the HEIs choose the mode of learning that would be effective for them considering the availability of resources from faculty members and students.

In 2017, CHED issued a memorandum order for the policies, standards, and guidelines of the business education programs and all their allied fields. This memorandum order specified the core competencies expected from the graduates, regardless of their HEIs. These competencies will help the teachers choose different methods for effective delivery of the curriculum to achieve the desired learning outcomes. Considering the different modes of learning necessary to face

the challenges during the pandemic, HEIs must ensure the delivery of quality education without sacrificing the expected competencies of the students.

Hence, this research aimed to study the management of flexible learning among faculty members of the business education programs of HEIs in Nueva Vizcaya. Specifically, it aimed to determine the respondents' profile in terms of age, sex, highest level of education, academic rank, years of teaching experiences and attended related trainings and seminars in flexible learning; identify the level of implementation of management functions in terms of planning, organizing, leading and controlling; determine the level of technology preparedness in terms of technology access, technology skills and literacy, and attitude of faculty members in technology; determine if there is a significant relationship between the respondents' profile and the management strategies of the faculty members, respondents' profile and the technology preparedness level of the faculty members and management strategies and the technology preparedness level of the faculty members; and recommend an enhanced program in the implementation of flexible learning.

Methodology

Research design

A mix of qualitative and quantitative research designs was used. Moreover, the needed data from the chosen respondents was gathered using a survey questionnaire. Determination and analysis of the information were done quantitatively using means, frequencies, and averages.

In addition, the study is qualitative in nature, as some questions were explored through the interview of key informants to further prove or explain the results of the study. A descriptive-correlation design was also used to determine the level of implementation of management functions in flexible learning and the level of technological preparedness of the faculty members, as well as to assess the relationship between the different variables.

Research locale

The study was conducted in Nueva Vizcaya, which is located in the northern part of Luzon. It was conducted in the municipalities of Bambang, Bayombong, and Solano, where HEIs offering business programs are located, such as Aldersgate College (AC), King's College of the Philippines (KCP), Nueva Vizcaya State University (NVSU), PLT College (PLTC), and Saint Mary's University (SMU). These HEIs are managed by CHED.

Sources of data

Primary data from the survey and Key Informants' Interview (KII) were used in the study, while secondary data were gathered from books, online articles, news, published theses, and other literature related to the study.

Data-gathering procedures

The researcher performed all activities from survey to KII. Hence, the following procedures were undertaken: In conducting the survey, the researcher followed a series of steps in obtaining the primary data, which was processed and used.

The researcher initially secured permission for the conduct of the study from the college dean, which was duly noted by the researcher's adviser. The questionnaire was reviewed by the researcher's adviser and panel committee and further validated with the use of Cronbach's alpha.

Prior to the survey, a list of the faculty members was requested from the deans of the respective business programs of the HEIs to provide the contact numbers and email addresses of the participating faculty members. Afterward, the questionnaire was given to the respondents for their completion. The accomplished questionnaires were reviewed as to the completeness of responses before it was tabulated. Lastly, the processed or tabulated questionnaires were analyzed and interpreted.

Respondents of the study

Faculty members with permanent employment status in business programs at HEIs in Nueva Vizcaya were the respondents to the study. Data were gathered from AC, KCP, NVSU, PLTC, and SMU.

Similarly, deans of the business programs of HEIs in Nueva Vizcaya served as key informants. The results of the survey from the respondents were also validated by their responses.

Distribution of participating faculty members is shown in [Table 1](#).

Sampling technique

In the selection of the participants, the study used simple random sampling (SRS) method. It is a fundamental sampling method in which a selection of subjects from a larger population is made with an equal chance of being included in the sample (13).

Thirty-five faculty members were the participants in the study, which was obtained using Slovin's formula with a 5% margin of error. After using this formula, a percentage was used to identify the total number of respondents in

TABLE 1 | Respondents of the study.

HEIs	Population	Percentage
1. AC	3	9
2. KCP	3	9
3. NVSU	18	51
4. PLTC	2	6
5. SMU	9	26
Total	35	100

the study. The respondents were identified through simple random sampling that was based upon a variety of criteria set for the study and their capability and willingness to participate in the study.

Instrument for research

A survey questionnaire for faculty members was created to meet the study's goals. This questionnaire was approved by the panel members and further validated with the use of Cronbach's alpha application, with an overall reliability of 98.2%. The results and computation of the Cronbach's alpha can be found in the appendices of the study.

Moreover, it was used to gather and characterize the faculty members based on their age, highest level of education, academic rank, years of teaching experiences and attendance to trainings and seminars in flexible learning. Furthermore, the gathered data indicated the level of the management functions of the faculty members in the implementation of flexible learning in terms of planning, organizing, leading, and controlling. In addition, questions from Mercado (14) were adopted to study the level of preparedness of the faculty members in terms of technology access, technology skills, literacy, and their attitude toward technology.

Lastly, an open-ended questionnaire was used to interview the deans of the HEIs offering business programs to support and verify the gathered data from the faculty members.

Statistical data analysis

This research study used a qualitative and quantitative research design.

The respondents' profile, level of implementation of management functions, and level of technological preparedness were determined through descriptive statistics such as percentage, mean, standard deviation, and frequency count.

The relationship between the variables, such as the respondents' profile, management strategies, and technological preparedness, was determined using statistical tools like Pearson's product moment correlation coefficient (Pearson's r), correlation ratio (E2), and point

biserial correlation coefficient, depending on the type of data being tested.

Pearson's product-moment correlation coefficient (Pearson's r) measured the strength of a linear association between two variables. Additionally, the correlation ratio (E2) calculates the correlation between the statistical dispersion within each category and the dispersion across the entire population or sample. Furthermore, the point-biserial correlation coefficient measures the strength of association or co-occurrence between two factors.

Results of the study

Respondent's profile

Table 2 presented and discussed the respondent's profile, which describes the faculty member's age, gender, highest level of education, position or academic rank, years of teaching experience, and number of related trainings and seminars attended in flexible learning.

The study showed that faculty members representing 28.8% belonged to the 21–30 age bracket, where 24 years old was the youngest and 72 years old was the oldest. The result showed that there were more young professionals teaching business programs. According to Alufolia (15), middle-aged teachers within the age bracket of 36–48 were more effective than young and old teachers. Although based on the study of Shah and Udgaonkar (16), age does not affect the performance of faculty members as long as they are active and interested in teaching.

Moreover, it was noticeable that faculty members were dominated by women, who accounted for 71% of the total respondents. Among the 35 respondents, 25 were female. This means that female faculty members were more passionate about teaching than males.

This supports the study of Shah and Udgaonkar (16), where many students felt that females were more compassionate, hardworking, sincere, and had an audible high-pitched voice, which are some characteristics of a teacher. However, this does not conform with the result of

the study by Taqi (17), which showed that most students prefer male teachers as they believe that their positive traits exceed those of the female teachers, such as friendliness, kindness, and fairness.

Furthermore, results showed that, based on the highest level of education, 57% of the faculty members had a master's degree. This means that faculty members met the minimum requirements of CHED to have at least a master's degree in the fields in which they teach. Based on the study of Yilmaz (18), faculty members with graduate education state that educational researches contribute to their professional lives in terms of classroom practices as well as their professional and individual development.

With regards to the faculty member's academic rank, it was noticeable that respondents who were Instructors I, II, and III represent a total of 59%, 33% of whom are within the age bracket of 21–30 years old, while 66% belong to the 31–55 age bracket. This means that there were lesser percentages of faculty members who were professors under business programs. According to Tang (19), educational attainment, service, teaching, and some of the other criteria, including research productivity, are used in determining a faculty member's rank. Based on the study of Wachtel (20), faculty members rank and experience does not significantly affect their teaching performance and evaluation.

In addition, 63% of the faculty members represented respondents with 1–10 years of teaching experience, 45% of whom are within the age bracket of 21–30 years old, while 55% belong to the 31–53 age bracket. Out of the total respondents, the shortest teaching experience was 1 year, while the longest was 37 years. Based on the study of Unal (21), years of teaching experiences affect the attitude of the faculty members. It stated that beginning teachers interact with their students in making decisions, while experienced faculty members would rather be in control in their classrooms.

Moreover, 63% of the total number of respondents attended 1–3 trainings and seminars related to flexible learning. This data affirms the interview with the KII that their HEIs conducted series of trainings for their faculty members in using different modalities in teaching as well as learning the platforms used in online learning. This also conforms with the study by Cuaton (22), found that many HEIs provided free online training for faculty members conducting online classes.

TABLE 2 | Respondent's profile.

Profiles	Clusters	Frequencies	Percentage
Age	21–30	10	28.57
Sex	Female	25	71.43
Highest level of education	Master's degree	20	57.14
Academic rank	Instructor I–III	21	60
Years of teaching experience	1–10	22	62.86
Number of related trainings and seminars in flexible learning	1–3	22	62.96

Level of implementation of management functions in flexible learning

This section presented and discussed the level of implementation of management functions in flexible learning in terms of planning, organizing, leading, and controlling.

Table 3 showed that leading had the highest mean of 4.30 with a qualitative description of *very great extent*, while controlling had the lowest mean of 3.85 with a qualitative description of *great extent*.

The study showed that planning had a mean of 4.13 and a verbal interpretation of *great extent*. Planning is a crucial part of the implementation of flexible learning, wherein faculty members' and staff's development should be prepared effectively as part of the strategies of the institution (23). This means that faculty members were aligned with the flexible learning initiatives.

Hence, faculty members supported the implementation of flexible learning to cope with the changes in the educational system brought by COVID-19. The findings did not support Moralista's (24) assertion that faculty members were unsure of their support for flexible learning, particularly online learning, due to doubt and uncertainty experienced during the transition to adopting the new norm for education.

As shown in **Table 3**, organizing has a mean of 4.16 with a qualitative interpretation of *great extent*. The result implied that faculty members organized the different teaching modalities to make sure education was accessible to all of their students. This conformed with Reyes-Chua et al. (25), who stated that faculty members used different platforms to teach during the crisis.

Moreover, it supported the recommendation of the Royal Academy (26) to use synchronous mode of learning because it helps the faculty members and students to interact with each other at the same time. The preparation of modules, reading materials, and other resources also conformed with the recommendation of the Royal Academy (26) to have textbooks, references, and online materials to read and work with.

Results also showed that leading had the highest mean of 4.30 and a qualitative description of a *very great extent*. The results implied that the faculty members of the HEIs in Nueva Vizcaya had an extremely high level of leadership and decision-making with the students. This conformed with the study of Ramirez (27), which found that different platforms were used for online clarifications and consultations.

It also supports the study of Cuaton (22) that deadlines for reports, assignments, and activities were extended depending

on the available resources of the students. Cheung and Cable (28) also discussed that motivation of the faculty to the students; quick feedback; active and collaborative learning; encouragement to the students in allocating more time to complete the tasks; diversified learning; and communication of expectations to the students to inspire them; and application of technology, are the eight principles to an effective online teaching.

Moreover, **Table 3** showed that controlling had the lowest mean of 3.85 with a qualitative description of *great extent*. This means that faculty members have a high level of communication and motivation with the students. Faculty members would constantly remind the students about the submission of requirements through short message services, social media, the LMS, and email.

In addition, faculty members are willing to check and rate the student's output manually and using the LMS. This supported the finding of Clarke's (29) study that assessment of student learning is important in understanding the learning needs of the students and adjusting the instruction accordingly. Furthermore, it conforms to the study of Fengchun et al. (30) that feedback for the student's performance should be given so that they will have the opportunity to perform better in their studies.

Level of technology preparedness of the faculty members in terms of access, skills and literacy, and attitude of faculty members in technology

This section presented and discussed the level of technology preparedness of the respondents in terms of access, skills, and literacy, and the attitude of faculty members toward technology.

Table 4 showed that technology access had a mean of 4.09 and a qualitative description of *great extent*. This implied that the faculty members had a high level of ability to access a stable Internet connection and a dependable computer. This data affirmed the study by Matheson (31) that access to technology and the Internet is an important component of a flexible learning environment.

The study also supported the recommendation of Contreras and Hilles (32) that faculty members should have internet access at all times to teach effectively and conveniently. However, Twining (33) and Guzman (34) pointed out that even if gadgets such as the Table PC were available for flexible learning, problems still arose with the battery life, Wi-Fi access, screen size, etc. Likewise, Husniyah (35) discussed that technical problems and slow Internet connections can affect the delivery of instructional materials.

The result also showed that technology skills and literacy had a mean of 4.25, with a qualitative description of a *very great extent*. This implied that the faculty members had the basic computer skills, computer application literacy,

TABLE 3 | Summary of the level of implementation of management functions in flexible learning in higher educational institutions in Nueva Vizcaya.

Management functions	Mean	Standard deviation	Qualitative description
Planning	4.13	0.76	<i>Great Extent</i>
Organizing	4.16	0.74	<i>Great Extent</i>
Leading	4.30	0.69	<i>Very Great Extent</i>
Controlling	3.85	0.96	<i>Great Extent</i>
Overall mean	4.08	0.80	<i>Great Extent</i>

and online skills to implement flexible learning. This result affirmed the study of Contreras and Hilles (32) that teachers have basic Internet skills and comfortability in using emails, downloading the files, navigating the web but have a low percentage of literacy on software applications that are used in facilitating flexible learning.

However, Noh et al. (36) pointed out that having personal computers and Internet access at home and school does not guarantee their readiness in flexible learning since many faculty members have a moderate self-efficacy, knowledge and skills on the different methods of teaching using ICT. Moreover, it does not assert the study of Doculan (37), where it showed that teachers were technically skilled in basic computer skills but had low skills in modifying online course contents and implementing flexible learning.

Table 3 showed that the attitude of faculty members toward technology had a mean of 4.11 with a qualitative description of great extent. This means that faculty members had a high level of teaching strategies, abilities, motivation, and time management when using technology. The data affirmed in the study of Doculan (37) that faculty members were ready with their teaching styles and strategies using the different modalities of flexible learning which meant that they were able to motivate the students to successfully involve themselves in the course.

However, it did not conform with Moralista and Oducado (38) that some of the faculty members were unsure in the transition of education from traditional to flexible learning which may possibly cause by their concerns in depersonalized instruction and proliferation of academic honesty using the technology as mentioned by Arinto (39). Likewise, results of the study differed on the discussion of Moralista and Oducado (38) and Wingo and Moss (40) that faculty members in the Philippines were hesitant in using technology in education because of the unstable internet connections.

Relationship between respondents' profile and level of implementation of management functions

This section presented and discussed the relationship between the respondent's profile and the level of implementation of management functions by the faculty members.

The results in **Table 5** indicated that the respondent's profile did not correlate significantly with the level of implementation of management functions in flexible learning, such as planning, organizing, leading, controlling, or with the overall level of implementation of management functions in flexible learning. Hence, the profiles were not significant factors in relation to the management strategies in the implementation of flexible learning. This also means that the profile of the respondents did not affect

the level of implementation of management functions in flexible learning.

Furthermore, result of the study conformed with Shah and Udgaonkar (16) that profile such as age does not affect the performance of the faculty members. Moreover, it supports the finding of Tang's (19) study that educational attainment and faculty rank and experience did not significantly affect the teaching performance and evaluation of the faculty members.

Relationship between the respondents' profile and level of technology preparedness

This section presented and discussed the relationship between the respondent's profile and the level of technological preparedness of the faculty members.

The outcome in **Table 6** showed that those faculty members who had lower educational attainments had a higher level of preparedness in terms of technology access. Hence, these faculty members had access to a dependable computer in schools or dependable computers with printers at home, or their smartphones are always connected to the Internet or have Internet at home. Most of them had access to computers with search engines and Internet browsers (e.g., Firefox, Chrome, Internet Explorer), and connection speeds at home and in school were adequate for accessing all course materials.

Moreover, most of the faculty members with lower educational attainment are between 21 and 30 years old. This

TABLE 4 | Summary of the respondent's technology access and level of knowledge, skills, and competencies including the attitude of the faculty members.

Level of technological preparedness	Mean	Standard deviation	Qualitative description
Technology access	4.09	0.85	<i>Great extent</i>
Technology skills and literacy	4.25	0.77	<i>Very great extent</i>
Attitude of faculty members in technology	4.11	0.69	<i>Great extent</i>
Overall mean	4.15	0.77	<i>Great Extent</i>

TABLE 5 | Relationship between respondents' profile and level of implementation of management functions.

Relationship between respondents' profile and level of implementation of management functions	Qualitative description
Respondent's profile and level of implementation of management functions	<i>Not significant</i>

means that the age and educational attainment of the faculty members were significantly correlated. Thus, younger faculty members had a higher level of technology access.

This conforms to the statistics of Sanchez (41) that the digital population mostly belonged to 16 years old and above. It also showed that in the Philippines, the number of Internet users increased to 73 million in 2020, which is the majority of the total population.

The result also showed that the level of preparedness in technology skills and literacy correlated significantly with age and years of teaching experience. The negative correlation inferred that younger faculty members in higher education institutions in Nueva Vizcaya were better prepared in technology skills and literacy. The result further implies that younger faculty members are more knowledgeable in surfing the Internet, installing software, changing the configuration settings of the computer, and more comfortable solving common hardware or software problems.

In addition, younger faculty members are more skilled in accessing online libraries and other resource databases, using asynchronous tools effectively (e.g., discussion boards, chat tools), using file compression (WinZip, Rar, etc.), and using presentation software like PowerPoint. Result of the study conformed with Purcell et al. (42) that teachers below 35 years old were more confident in using digital technologies than those who were older. It also affirmed with the study of Pardo (43) that young faculty members had higher competencies in using ICT. Moreover, the same study pointed out that young faculty members could use collaborative web-based tools and they had higher skills in using the technology compared to older teachers.

TABLE 6 | Relationship between the respondents' profile and level of technology preparedness.

Relationship between the respondents' profile and level of technology preparedness	Qualitative description
Respondent's profile and technology access	<i>Significant</i>
Respondent's profile and technology skills and literacy	<i>Significant</i>
Respondent's profile and attitude of faculty member in technology	<i>Not significant</i>
Overall	<i>Not significant</i>

TABLE 7 | Relationship between the implementation of management functions and technology preparedness.

Relationship between the implementation of management functions and technology preparedness	Qualitative description
Implementation of management functions and technology preparedness	<i>Significant</i>

In addition, results showed that the attitude of faculty members toward technology did not correlate significantly with any of the profile variables used in the study. Hence, the respondent's profiles were not significant factors in relation to the level of technological preparedness of the faculty members in terms of their attitude toward technology. This means that the profile of the faculty members did not affect their level of attitude toward technology.

The result of the study did not conform with Moralista and Oducado's (38) finding that faculty members were hesitant to use technology in education because of the unstable internet connections in the Philippines. On the other hand, the study of Doculan (37) affirmed that faculty members had a positive attitude toward using technology because of its flexibility in accessing materials anywhere and anytime, which also led to more effective communication between students and faculty members. Lalima (44) also discussed that flexible learning needs right attitude and highly encouraged students and teachers for a successful implementation.

The result showed that the overall level of technology preparedness of faculty members in flexible learning in higher educational institutions in Nueva Vizcaya did not correlate significantly with any of their profiles. Hence, the respondent's profile was not a significant factor in relation to the level of technological preparedness of the faculty members. This demonstrates that, in general, the respondents' profiles did not influence their level of technological preparedness.

Relationship between the implementation of management functions and technology preparedness

This section presented and discussed the relationship between the implementation of management functions and technological preparedness of the faculty members.

The result in **Table 7** regarding the relationship between the level of implementation of management functions and the level of technology preparedness of faculty members in higher educational institutions in Nueva Vizcaya indicates that the variable technology preparedness in terms of technology access is significantly correlated with the level of implementation of management functions of planning, organizing, leading, and the overall implementation of management functions. Hence, the result implied that when the level of implementation of management functions in flexible learning, such as planning, organizing, and leading, was high and their overall level of implementation was high, the result would also be a *high level* of technology preparedness among faculty members in higher education institutions in Nueva Vizcaya. In contrast, when the aforementioned management functions of flexible learning were barely implemented in the study site, the result would also be a low level of technological preparedness

among faculty members in higher education institutions in Nueva Vizcaya.

Hence, full implementation of the basic management function is a significant factor for ensuring a high level of preparedness in terms of technology access among faculty members of HEIs in Nueva Vizcaya. On the other hand, the implementation of the basic management function of controlling did not significantly correlate with the level of preparedness in terms of technology access among faculty members of HEIs in Nueva Vizcaya.

Likewise, the relationship between the technology preparedness of faculty members in terms of technology skills and literacy among faculty members of HEIs in the study site significantly correlated with the level of implementation of the basic management function of organizing in flexible learning. The positive correlation coefficient implies that when faculty members in academic institutions of higher learning had *high levels* of technological preparedness, they were better able to strategize the number of students to be scheduled and accommodated for online, face-to-face, or synchronous modes of learning. Likewise, they were more ready to provide printed and soft copy modules to their students, address a variety of student learning styles, conduct online lectures through video presentation, PowerPoint, audio recordings, Google Meet/Zoom, and other Learning Management Systems (LMS) for their students.

Notwithstanding, the overall level of technology preparedness of the faculty in higher academic institutions with the implementation of management functions in flexible learning such as organizing, leading, and the overall implementation of management functions. The positive correlation coefficient implies that when the management functions in flexible learning were well implemented in terms of planning, leading, as well as the overall level of management, then faculty members in academic institutions of higher learning had *high level* technology preparedness. However, when the aforementioned management functions of flexible learning were not fully implemented, faculty members in academic institutions of higher learning were not technologically prepared for flexible learning.

Recommended enhanced program in the implementation of flexible learning

This section presented and discussed the recommended enhanced program for the implementation of flexible learning. The recommendation highlights the objectives and activities in planning, organizing, leading, and controlling functions of HEIs and faculty members in terms of technology preparedness.

In planning, HEIs should prepare a strategic plan to allocate funds for the improvement of ICT infrastructures that facilitate flexible learning. In addition, HEIs may prepare and submit proposals to LGU and other private institutions

for sponsorship to allocate budgets for the implementation of flexible learning. Internet providers recommend as much as 25 mbps per 100 concurrent users. The duration of this activity may last for 5 months, and the budget depends on the available resources and needs of HEI.

Moreover, faculty members should ensure the accessibility of computers and strong Internet connections to facilitate online classes. Moreover, HEIs should prepare training sessions for faculty members and students in using LMS in lesson preparation, course delivery, attendance checking or class monitoring, learning assessment of the students. Faculty members should be able to develop effective learning packages incorporating the different strategies in flexible learning including feedback option, video conferencing, self-paced learning, and assessment techniques.

In addition, faculty members need to prepare the course syllabus in accordance with the needs of facilitating flexible learning. These activities can be done for 1–2 weeks. It is also recommended that HEIs facilitate seminars for faculty members to change their mindsets and perceptions toward flexible learning. Moreover, faculty members should be motivated in the implementation of flexible learning by planning the delivery of courses and create a schedule of meaningful and active involvement of students.

In organizing, HEIs should provide a laboratory room where faculty members can facilitate online discussions. Laboratory room should be equipped by computers and Internet connections with air condition. In addition, HEI should provide strong Internet connections that faculty members can access anywhere within the school's vicinity to facilitate online classes.

Internet providers recommend speeds as high as 25 mbps for 100 concurrent users (45). Moreover, faculty members should have readily available computers and Internet connections. HEIs should purchase, prepare an in-house LMS, or use available LMS in the Internet.

Faculty members should be able to build a community by obtaining the contact details and email addresses of the students and adding them to the LMS. To be motivated in the implementation of flexible learning, faculty members should set up a working space that is conducive for faculty-student teaching engagement to minimize distractions during online classes and use a variety of online teaching methodologies in discussing different topics and exert more effort to make lessons more interesting.

Moreover, in leading, faculty members should be motivated in the implementation of flexible learning by providing an overview of the lesson to be discussed and recapping the previous week's topic, engaging in animated online learning and breaking down complex activities, providing more examples and content if the concepts and information are complicated, complex, or difficult to understand, and teaching with more understanding, patience, and genuine support by taking into consideration the different psychosocial, economic,

and mental backgrounds of the students and respecting individual differences.

With regards to controlling, HEIs should monitor the implementation of flexible learning by assessing the operational capabilities of the colleges in terms of infrastructure and support. In addition, faculty members should be motivated in the implementation of flexible learning by rating the student's output or course requirements, using appropriate assessment tools like rubrics, interviews, presentations, discussions, etc., committing to continuous improvement, and conducting classes with the highest level of professionalism.

Conclusion and recommendations

Conclusion

The following are the conclusions based on the study's findings:

Faculty members in business programs of HEIs in Nueva Vizcaya were designated by young professionals between 21 and 30 years old, female, and master's degree holders. Moreover, most of the faculty members were Instructors I, II, and III with 1–10 years of teaching experience and had attended related trainings and seminars in flexible learning.

Faculty members of business programs had a high level of implementation of management functions in flexible learning in terms of planning, organizing, leading, and controlling.

Faculty members of business programs had high level of implementation of technology preparedness in terms of technology access, technology skills and literacy, and attitude toward technology.

The profiles of the faculty members were not significant factors in determining their level of implementation of management functions in flexible learning, such as planning, organizing, leading, and controlling. Hence, the profile of the faculty members did not affect their level of implementation of management functions in flexible learning.

Faculty members who had lower educational attainments and were within the age bracket of 21–30 years old had a higher level of preparedness in terms of technology access.

Younger faculty members were more prepared in terms of technology skills and literacy. They were more skilled in using their computers and accessing the Internet for the implementation of flexible learning.

The profile of the respondents was not a significant factor in relation to the level of technological preparedness of the faculty members in terms of their attitude toward technology. Hence, the profile of the faculty members did not affect their level of attitude toward technology.

Overall, the researcher concluded that when the level of implementation of management functions in flexible

learning, such as planning, organizing, leading, and controlling, was high, the result would also be a high level of technology preparedness among faculty members in HEIs in Nueva Vizcaya.

Recommendations

The following are the recommendations based on the findings and conclusions of this study:

Young professionals may be considered for teaching under business programs since they have higher technology access, skills, and literacy. Moreover, with their high competence in using ICT, they are better equipped to facilitate flexible learning. Young professionals are also skilled in accessing resource databases, and they can easily use collaborative web-based tools.

The HEIs may conduct thorough workshops, trainings, and seminars for all the faculty members on using the different platforms to be used in teaching based on their academic needs. Moreover, faculty members should be encouraged in considering the different creative methods in enhancing the interaction of students while promoting the learning outcomes. In addition, there should be training plans to enhance the knowledge and capabilities of the faculty members in managing flexible learning, instructional design, and content development.

higher education institutions (HEIs) may develop LMS and proper ICT infrastructures that are required for facilitating flexible learning. Moreover, network bandwidth should be increased in the university to be able to accommodate the growing number of users and to cope with the need for flexible learning. Likewise, technical support for the students and faculty members should be facilitated.

higher education institutions (HEIs) may encourage faculty members who are not in favor of new technologies to attend online teaching training and digital literacy. Moreover, there should be continuous training programs emphasizing the benefits and outcomes of the implementation of flexible learning, and HEIs may ensure the limited classroom capacity for face-to-face discussions, if any, as well as the classroom set-up for social distancing based on CHED and Inter-Agency Task Force (IATF) guidelines. Moreover, fast Internet connections should be available to students within the university's premises. Likewise, computer laboratories should be available for students while considering the social distancing guidelines of CHED and IATF.

The adaptation of the enhanced program is highly recommended in the implementation of flexible learning, including the recommended resources and other online tools for better facilitation of flexible learning.

Other researchers may use this study as a benchmark for conducting research with a wider scope, both in terms of the location of the study and the scope of the research areas.

Acknowledgments

The author would like to convey her gratitude to her adviser, CReginalde, for the guidance throughout the entire research; to her panel members for their suggestions in shaping the entire study; to all contributors in providing information during the conduct of the study; and to NVSU in nurturing the researcher in her career advancement.

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