

Knowledge of Faculty Members in Higher Education on Flexible Learning during the COVID19 Pandemic

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Abstract

This study generally examined the knowledge of faculty members along flexible learning. Specifically, it investigated the personal and instructional profile of the respondents and their level of knowledge on flexible learning along the five (5) dimensions namely: time, content of the course, entry requirements, instructional approaches and resources, and delivery and logistics. The researcher utilized mixed research design and the study was conducted in the eight (8) campuses of Cagayan State University. There were 217 respondents in the study and 15 study participants. The profile of the respondents revealed that majority are female, aged 31-40, holders of instructor position, master's degree graduates and come from Andrews campus. As regards instructional profile, a greater proportion of the respondents used Facebook Messenger for discussion, CSU LENS for examination platform and laptops as gadgets. Moreover, the respondents are connected to WiFi, and they used a combination of synchronous and asynchronous delivery for instruction. Also, they spent Php 1,000.00 -Php 3,000.00 per month for internet connection. Notably, the respondents have average level of knowledge on the dimensions of flexible learning. Interestingly, there is no significant difference on the knowledge of the respondents on flexible learning based on their personal profile. Irrespective of sex, age, academic rank, educational attainment, campus, length of service and field of specialization, they have similar level of knowledge on flexible learning. On the other hand, delivery of instruction and monthly expenses to connectivity do not explain differences in the knowledge on flexible learning. The overall knowledge on flexible learning of the respondents is not also significantly associated to platform for discussion, platform for examination, devices/gadgets used, and internet connection. It is concluded that the faculty members of Cagayan State University (CSU) have moderate knowledge on flexible learning. Thus, much is desired to enhance their competence in flexible learning through formal training and other forms of capability building.

Keywords: Flexible Learning, Knowledge, Higher Education, COVID19

Introduction

The Philippine government has instituted a six-month "enhanced community quarantine" in March 2020, which is a full lockdown in response to the coronavirus disease pandemic in the country (COVID-19). Several non-essential stores and businesses were lockdown, and the education sector was not spared. Higher Education Institutions (HEIs) were obliged to start implementing flexible

learning modalities to ensure that Filipino learners are protected from being infected with the virus. This transition from face to face to flexible learning or online learning, happened on short notice. The immediate implementation of the flexible learning was questioned considering the lack of readiness of faculty and school administrators in implementing such modality (Favale et al., 2020). In addition to this problem is the network infrastructure constraints, which has become a limiting factor in the

implementation of flexible learning. Despite these limitations, HEIs stand on the belief that “academic freeze” is not an option.

In Cagayan State University (CSU), faculty members and school administrators were caught flat footed with the implementation of flexible learning. Immediate resistance was showed by faculty members who were not technologically inclined most especially the “senior” faculty members. The resistance may be due to the fact they never had training on online teaching and lack of prepared modules for uploading. In the desire of some to cope with flexible learning they utilized different platforms such as, FB Messenger, Learning Management System, MS TEAMS, Schoology and Moodle. Meanwhile, school administrators were unprepared to provide the essential learning management system to carry out the flexible learning. They needed to upgrade the software resources of the university just to cope with the demands of the faculty members and students who use them for online classes.

The word ‘flexible learning’ has been used in a general sense for decades, but there has recently been a trend to use the term in a more defined and technical sense. Collis and Moonen (2002) claim that flexible learning is more than distance learning, with the core principle that learners are at the center of multiple aspects of the learning experience. Meanwhile, in accordance with the draft proposal of CHED on the implementing guidelines on flexible learning to be used by public and private HEIs, flexible learning is the design and delivery of programs, courses, and learning interventions that address learners’ unique needs in terms of place, pace, process, and products of learning. It involves the use of digital and non-digital technology and covers both face-to-face/in-person learning and out-of-classroom learning modes of delivery or a combination of modes of delivery. It ensures the continuity of inclusive and accessible education

when the use of traditional modes of teaching is not feasible, as in the occurrence of national emergencies (CHED, 2020).

Centered on the principle of learner choices, Russell and Cumming (2011) point out that students should be able to choose how to study their courses in flexible learning. For learners to become successful, educators should be prepared to assist them in their choices and direct them to use sound teaching methods. Flexible learning offers a burden most especially towards teachers in designing teaching methodologies and instructional materials which are really aligned with the philosophy of flexible learning. However, the role of the school administrators cannot be undermined because they provide the needed soft and hard structures in its implementation. Tucker and Morris (2012) claimed that delivery strategies, learner-centered approach, and the role of resource-based learning are key aspects or dimensions of flexibility, which also underlines the role of teachers in promoting the choices of learners.

In most schools, the first semester has ended. This means that teachers were able to experience a significant paradigm shift in their pedagogical practice brought by flexible learning. However, the big issue is: “Did the shift in their teaching practice move towards flexibility or was it just a substitution of the traditional methods to “just get everything online”? Temple & Fillippakou (2007) argues that while many teachers declare to have used flexible learning in its strictest sense, they continue to use pedagogical methods suitable for more traditional face to face classroom setting. In such case, teachers may behave in ways that are contrary to the intended or anticipated teaching and learning style of flexible learning (Hartnett, 2016). Also, Torneo et.al (2020) concluded that the majority of HEIs in the Philippines have limited experience with flexible

learning and that only a slight majority have flexible learning as part of their university policy.

In view of the foregoing context, this study generally examined the knowledge of faculty members along flexible learning. Specifically, it determined the personal and instructional profile of the respondents. It measured the knowledge of the faculty members on flexible learning along the following dimensions: Time, Content of the Course, Entry Requirements, Instructional Approaches and Resources, and Delivery and Logistics. It also identified if there is a significant difference in the respondents' level of knowledge on flexible learning when grouped according to their personal and instructional profile. The result of this undertaking will be a valuable input in identifying the training needs of faculty members to effectively implement flexible learning in the university.

Methodology

Research Design

This study used descriptive-associational research design. Specifically, the design is selected to examine the profile of the teachers and their levels of knowledge on flexible learning. Furthermore, it tested if there are significant differences in their level of knowledge based on their personal and instructional profile. Descriptive-associational design examines the differences and relationships among variables but not on their effects (Grimes & Schulz, 2002).

Locale and Respondents of the Study

This study was conducted in the eight campuses of Cagayan State University (CSU). The respondents of the study were the permanent faculty members of CSU across its campuses. Faculty members with more than nine (9) units equivalent teaching load (ETL) were included in the study. There are 474 faculty

members who met the inclusion criteria and using Slovin's formula, the computed sample size is 217 with the population of 474. The selection of respondents per campus was done through random sampling using the faculty roster obtained from the Office of the Campus Registrars.

Research Instrument

This study utilized a questionnaire as its data gathering instrument. It is composed of two parts. The first part elicited the personal and instructional profile of the respondents. The second part is an objective test that measured the knowledge of the faculty members towards flexible learning. It is important to note that this instrument is a researcher-made test that consisted of fifty (50) item multiple choice test based on existing literature on flexible learning. From the validation, twenty (20) items were selected for the final instrument. The competencies measured in the test include the knowledge of the respondents on flexible learning along the five dimensions: time, course of content, instructional approaches and resources, entry requirements, and delivery and logistics. These dimensions of flexible learning were adapted from Casey and Wilson (2005) based on the work of Collis and Moonen (2006).

The instrument was validated by experts using qualitative content validation. The validation yielded a Content Validity Ratio (CVR) of 2.78 indicating highly valid test items. From the computed CVR, the top 20 highest rated items by the evaluators were selected for the final instrument distributed equally among the five dimensions of flexible learning. Additionally, the instrument from part one to three was pilot tested to non-respondents. From the results of the pilot testing, the computed Cronbach's Alpha for the test is 0.716 which means that the instrument has good reliability.

Data Analysis

Means, frequencies, percentages, and ranks were used to describe the data. For hypothesis testing, the Kolmogorov-Smirnov and Shapiro-Wilk test results indicated violation of normal distribution in the data hence, nonparametric tests were utilized in the study. The Mann-Whitney U test and Kruskal-Wallis H with Dunn-Bonferroni post hoc test were used in determining significant differences in the knowledge of respondents when grouped according to profile variables. Moreover, Kendall's tau-b correlation was run to determine the relationship between knowledge and platforms for discussion and exam, devices used, and internet connection. All analyses were tested at 0.05 level using IBM SPSS.

Results and Discussion

Personal Profile of the Respondents

Table 1 presents the profile of the respondents in terms of sex, age, academic rank, highest educational attainment, campus, length of service, and field of specialization. It shows

that there are more female (60.7%) than male (39.3%) respondents. Meanwhile, in terms of age, most of the respondents are within the age range of 31-40 years old (37.4%) and within 41-50 years old (31.1%).

The data on academic rank of the faculty members indicates that majority are occupying Instructor positions (42%) and very few occupy Full Professor positions (2.7%). Moreover, the same table shows that majority of the respondents are holders of master's degree (57.1%). The data on academic rank and highest educational attainment coincides with that of Nozaleda & Calubaquib (2020) in their profile analysis of faculty members in Cagayan State University. In terms of campus assignment, most of the respondents are from Andrews (37%) and Carig (36.1%) Campuses. As regards length of service, the bulk of the respondents have rendered 6-10 years (22.8%) followed by 11-15 years (22.4%). Lastly, the data on the specialization of the faculty members revealed that majority are in the field of teacher education (26.9%) and Information Technology (22.8%).

Table 1. Personal Profile of the Respondents

	Frequency	Percent
Sex		
Female	133	60.7
Male	86	39.3
Age		
20-30	31	14.2
31-40	82	37.4
41-50	68	31.1
51-60	32	14.6
61-65	6	2.7
Academic Rank		
Instructor	92	42.0
Assistant Professor	65	29.7
Associate Professor	53	24.2
Professor	9	4.1
Highest Educational Attainment		

BS/AB	9	4.1
Masters	125	57.1
Doctoral	85	38.8
Campus		
Andrews	81	37.0
Aparri	18	8.2
Carig	79	36.1
Gonzaga	5	2.3
Lallo	3	1.4
Lasam	5	2.3
Piat	13	5.9
Sanchez Mira	15	6.8
Length of Service		
1-5	42	19.2
6-10	50	22.8
11-15	49	22.4
16-20	34	15.5
21-25	20	9.1
26-30	9	4.1
31-35	8	3.7
36-40	6	2.7
41-45	1	0.5
Field of Specialization		
Accounting, Business, Management	16	7.3
Agriculture	4	1.8
Allied Health	14	6.4
Education	59	26.9
Engineering and Mathematics	12	5.5
Information Technology	50	22.8
Pure Sciences	12	5.5
Social Science	19	8.7
Fisheries	14	6.4
TechVoc	4	1.8
HRM	6	2.7
Mass Communication	3	1.4
Criminology	3	1.4
Others	3	1.4
Total	219	100.0

Instructional Profile of the Respondents

Table 2 indicates that Facebook Messenger (52.1%) is the most used platform for discussion followed by CSU Lens (49.8%). On the other hand, CSU Lens (52.5%) is the platform that is dominantly used for examination. In terms of devices used, laptops (89.5%) were frequently utilized followed by smartphone

(61.25%). With regard to internet connection, a high proportion of the respondents are connected to Wi-Fi (79.5%). For the delivery of instruction, majority of the respondents used a combined method of synchronous and asynchronous delivery (89.5%). In relation to connectivity expenses, majority of the respondents (79.5%) spend Php1,000.00 to Php 3,000.00 per month.

Table 2. Instructional Profile of the Respondents

		Frequency (N=219)	Percent (100%)
Platform Used for Discussion			
	CSU Lens	109	49.8
	Edmodo	4	1.8
	Discord	1	0.5
	Facebook Messenger	114	52.1
	Facebook Social Learning Group	23	10.5
	Google Meet	94	42.9
	Moodle	10	4.6
	MS Teams	35	16.0
	Schoology	23	10.5
	Zoom	61	27.9
	None	5	2.3
Platform Used for Examination			
	CSU Lens	115	52.5
	Edmodo	14	6.4
	Facebook Messenger	43	19.6
	Moodle	3	1.4
	MS Teams	25	11.4
	Schoology	32	14.6
	Google Forms	15	6.8
	Email	17	7.8
	None	3	1.4
Devices/Gadgets Used			
	Desktop	42	19.2
	Laptop	196	89.5
	Smartphone	134	61.2
	Tablet	19	8.7
	None	3	1.4
Internet Connection Used			

	Data	50	22.8
	Wi-Fi	174	79.5
	Wireless Broadband	31	14.2
	Home Fiber	3	1.4
	Prepaid	4	1.8
Delivery of Instruction			
	Synchronous	11	5.0
	Asynchronous	12	5.5
	Combination	196	89.5
Monthly Expenses for Internet			
	Less Than 1000	16	7.3
	1001-3000	174	79.5
	3001-5000	21	9.6
	5001-10000	2	0.9
	More Than 10000	6	2.7

Level of Knowledge of the Respondents on Flexible Learning

Table 3 shows the level of knowledge of the respondents on the five dimensions of flexible learning. Majority of the respondents have average knowledge (73.5%) on the five dimensions of flexible learning. This finding means that they have moderate knowledge on the use of digital and non-digital technology or a combination of both. It should be noted that the faculty members of the university have received limited capability building activities particularly on educational technology during the pandemic. Furthermore, flexible learning as a sudden response to the pandemic has left the teachers unprepared to use various educational technologies. They revealed that teachers use technology on a regular basis and have a good level of skill in using a wide variety of programs and applications. There is still, however, a small number who lack confidence, are afraid to use technology and avoid using it. Hence, they generally characterized the skills of the teachers in using technology during the pandemic as average.

Among the dimensions of flexible learning, 82 or 37.4% obtained high score in Delivery and logistics. This finding signifies that most of the respondents are very knowledgeable about the methods or technology in making contact or communication to students. Example of this method or technology includes FB Messenger. This can be explained by the prior exposure of the teachers to these kinds of online tools even before the pandemic started. Faculty members in the university have been organizing their classes using Facebook messenger and emails. Additionally, even colleges have formed group chats of teachers to easily disseminate information among them. Such finding supports the study of Pozo et.al (2021) as they revealed that the skills of the teachers in using online communication technologies significantly impact the learning performance of their students.

As regards time dimension, most of the respondents (82 or 37.4%) obtained an average score which reveals that they have moderate knowledge in starting and finishing a course. It also reveals that they are not generally conscious in managing their time in synchronous and

asynchronous classes. This may be attributed to the fact that they are still adjusting to the new delivery modes. The said findings are also reflected in the study of Zalat et.al (2021) which indicated that only half of their survey respondents are aware of the advantages of time flexibility when teaching online. Additionally, they reported that faculty members considered that online learning can take time and can lead to student monitoring difficulties.

Furthermore, the dimensions which obtained low scores are course content (86 or 39.9%) and instructional approaches and resources (90 or 41.1%). The low score on course content denotes that the respondents have little knowledge in selecting, sequencing, and orientating the topics in the course. Again, this finding may be attributed to the sudden shift in teaching and learning modalities when the pandemic started. Teachers were forced to revise their syllabi and developed instructional materials without receiving proper orientation on the principles of flexible learning. Even though there have been seminars and trainings conducted on module development and on the use of LMS, there are still a lot of topics to consider so that teachers in the university will have a full grasp of the essence of flexible learning. On the other hand, the low score along instructional approaches and resources may mean that the respondents have little knowledge in social organization, language, learning

resources and materials during class. This finding may be accounted to the fact that with the sudden shift of learning modality, majority of the respondents were not prepared with the module they need to use in their classes. This finding confirms the study of Scott & Goode (2020) who revealed educators were not able to cope with delivering innovative and relevant learning experiences in their classrooms. The same study presented the low knowledge of teachers on the appropriate instructional materials and pedagogies for flexible learning. Accordingly, this speaks of the nature of teachers being stuck on the principles of traditional classrooms.

Finally, majority of the respondents had very low score on entry requirements (112 or 51.5%) which reveals that they have scarce knowledge on the admission requirements for the course. It also indicates that they lack knowledge in recognizing prior learning/experience and in bridging studies of students. This was the same problem observed by Benade (2019) in his study on the implementation of flexible learning in New Zealand. He argued that schools, which includes the teachers, do not understand the role of admission requirements in fostering flexible learning spaces. Benade (2019) added that teachers are strict in implementing the admission requirements set by the school administrators.

Table 3. Level of Knowledge of the Faculty Members on Flexible Learning

Dimensions of Flexible Learning	Very low (0-5)		Low (6-10)		Average (11-15)		High (16-20)	
	n	%	n	%	n	%	n	%
Time	28	12.8	50	22.8	82	37.4	59	26.9
Course Content	31	14.2	86	39.3	66	30.1	36	16.4
Entry Requirement	112	51.1	75	34.2	26	11.9	6	2.7
Instructional	36	16.4	90	41.1	89	40.6	4	1.8
Delivery and Logistics	20	9.1	36	16.4	81	37.0	82	37.4
Overall Knowledge	1	0.5	53	26.5	146	73.0	0	0.0

Difference of Knowledge on Flexible Learning Based on Personal Profile

Overall, table 4 shows that there is no significant difference on the knowledge of the faculty members on flexible learning based on their personal profile. All tests derived p-values greater than 0.05; hence, the hypothesis of no difference is rejected. This means that regardless of the sex, age, academic rank, educational attainment, campus, length of service, and field of specialization, the faculty members have similar level of knowledge on flexible learning. Such finding may be attributed to the fact that flexible learning is newly introduced as a construct in education. It only came out as a concept during the pandemic and has been popularized with the issuance of directives by the Commission on Higher Education. Thus, irrespective of the personal profile of the faculty members, they have similar knowledge on flexible learning.

The findings negate that of a recent study by Elumalai et.al (2021) which revealed that there is a significant difference between the gender as regards the quality of e-teaching. They argued that female teachers are better in understanding the social dynamics in their online classrooms and hence can develop learning materials and use instructional approaches that suits their students. Moreover, in terms of age Hwang et.al (2018) states that teachers' age matters in terms of using the proper technological tools for a particular task in teaching. Younger teachers are more knowledgeable on the use of technological tools as compared to the older ones. Similarly, the findings of Teddy So and Swatman (2010) showed that age in favor of the younger ones have significant influence on in-service teachers' level of knowledge on the use of digital technologies in online learning.

Table 4. Summary Table on the Difference of Knowledge on Flexible Learning based on Personal Profile

Personal Profile	U-Test and H-Test Value	P-Value	Decision
Sex	U = 5552.50	0.714	Not Significant
Age	H = 0.831	0.842	Not Significant
Academic Rank	H = 4.021	0.259	Not Significant
Highest Educational Attainment	H = 5.427	0.066	Not Significant
Campus	H = 13.530	0.060	Not Significant
Length of Service	H = 3.839	0.573	Not Significant
Field of Specialization	H = 21.562	0.063	Not Significant

***Significant at 0.05**

Difference/Association of Knowledge on Flexible Learning Based on Instructional Profile

It was hypothesized in the study that there is a significant difference in the respondents' knowledge on flexible learning of the respondents when grouped according to their

instructional profile. Table 5 reveals that delivery of instruction and monthly expenses to connectivity do not explain differences in the knowledge on flexible learning. This finding signifies that irrespective of delivery of instruction and monthly expenses, the faculty members have the same knowledge on flexible

learning. Furthermore, the overall knowledge on flexible learning of the respondents is not significantly associated to platform for discussion, platform for examination, devices/gadgets used, and internet connection. The finding implies that their knowledge on flexible learning is not influenced by these instructional profile variables. Such result may be explained to the “newness” of flexible learning. The moderate knowledge of the respondents clearly demonstrates their need to know more about flexible learning as an emerging approach to education as a significant response to the pandemic.

The findings of this study are however contrary to the findings of Ottestad (2014) who

revealed that all teachers recognize the importance of using digital technology in learning. Nonetheless, there were marked differences in the skills and knowledge found among the teachers. Furthermore, majority of the teachers demonstrate weak digital skills and knowledge. Moreover, Downing et. al, (2013) argued that there are factors influencing the faculty’s positive attitudes toward teaching online. One of these is flexibility of time and teaching schedules. Significantly, in a fully online environment, teachers considered online teaching to be time-consuming compared to face-to-face classes.

Table 5: Summary Table on the Difference of Knowledge on Flexible Learning Based on Instructional Profile

Instructional Profile	H-value/ τb	P-Value	Decision
Delivery of Instruction	H= 2.284	0.319	Not Significant
Monthly Expenses	H= 4.560	0.207	Not Significant
Discussion platform	$\tau b = -0.041$	0.436	Not Significant
Examination Platform	$\tau b = -0.090$	0.117	Not Significant
Devices Used	$\tau b = 0.020$	0.713	Not Significant
Internet Connection	$\tau b = 0.077$	0.186	Not Significant

****Significant at 0.05***

Conclusion and Recommendations

The faculty members of Cagayan State University (CSU) have moderate knowledge on flexible learning. Thus, much is desired to enhance their competence in flexible learning through formal training and other form of capability building. Notably, higher knowledge on flexible learning is exemplified by faculty members who are younger, female and teaching at urban campuses. Interestingly, knowledge on flexible learning is principally influenced by the utilization of WiFi connection as it has a more stable and accessible service than other types of internet connection. In light of this, the researcher recommends that a training design

must be proposed to CSU management for possible adoption particularly by the University Training Office which is in-charged for the continuing professional development of the faculty members. Moreover, faculty members with slow or weak internet connectivity are encouraged to upgrade their WiFi connection as it may significantly influence their knowledge on flexible learning. Also, Campus Executive Officers of campuses outside Tuguegarao are encouraged to provide stable and adequate ICT resources to enhance the knowledge of their faculty members on flexible learning particularly Lasam Campus. Male and older faculty members are suggested to be given priority in

terms of capacity building in flexible learning as they are needing more assistance as compared to their counterparts. Lastly, a similar study is

recommended but focused on the students as they are the primary beneficiaries of flexible learning.

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