

Modular Learning amidst COVID-19 Pandemic: Satisfaction Among Students in a Higher Education Institution

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Citation: Tugano, M. S., Tria, J. Z., Tonio, J. Z. (2022). Modular Learning amidst COVID-19 Pandemic: Satisfaction Among Students in a Higher Education Institution. *International Journal of Professional Development, Learners and Learning*, 4(2), ep2206. <https://doi.org/10.30935/ijpdll/12075>

ABSTRACT

Educational institutions were compelled to close their doors due to COVID-19 pandemic. This resulted to the sudden shift from face-to-face classes to flexible learning to allow continuity of providing quality education to students. The aim of this study is to determine the level of satisfaction of students of Catanduanes State University (CatSU) on modular learning as one of the flexible learning modalities used by the institution during the pandemic. This quantitative descriptive research developed and utilized a Likert scale survey questionnaire distributed to 3,332 students of CatSU representing the various colleges and year levels. Result of the study showed that the students' level of satisfaction on modular learning has varying degree of strength from "very satisfied" ($\bar{x}=2.71$) to "satisfied" ($\bar{x}=2.01$) in the different indicators covered by the study. Significant differences were likewise revealed in the level of satisfaction among students across colleges and year levels. Further investigation is needed to validate the findings. Studies not only exploring on student satisfaction but also satisfaction among faculty members of the institution on the implementation of modular learning amidst pandemic is also recommended.

Keywords: modular learning, satisfaction, new normal, COVID-19 pandemic

Received: 3 Feb. 2022 ♦ Accepted: 2 Apr. 2022

INTRODUCTION

The COVID-19 pandemic has disturbed educational institutions at all levels in a global scale. For almost a year since the pandemic has started, it has brought several opportunities, challenges, and problems in all aspects of daily life—ranging from health, economy, education, politics, culture, and other sectors of the society. As of February 2021, COVID-19 cases had reached more than one hundred million worldwide, with more than a half-million cases in the Philippines (Worldometer, 2021). While the COVID-19 pandemic cases continue to rise indefinitely in the country, despite birth of vaccines from different companies and research centers (Yamey et al., 2020), the country is still battling the pandemic strictly implementing health and safety protocols and different lockdown and quarantine measures (Department of Health, 2021).

Due to this pandemic challenge, most of the schools had closed but the learning process must not halt—it must remain to continue and active even without face-to-face classes and thus several educational sectors migrate to other effective and suitable learning modalities (Fatonja et al., 2020). Secretary Briones of Department of Education (DepEd) assured that "education must continue even in times of crisis" (DepEd, 2020) while the Commission on Higher Education advised all higher education institutions (HEIs) to "deploy available flexible

learning and other alternative modes of delivery" (CHED, 2020). With this dilemmatic learning condition, every educational institution is determined in providing quality, inclusive, and outcomes-based education to students. This is not only a challenge to students but to teachers and school administrators as well (Fawns et al., 2020; Johnson et al., 2020). As technology has been one of the efficient learning tools during the pandemic according to Toquero (2021), one of the challenges is the stable internet connectivity and the privilege to own a gadget (Adedoyin & Soykan, 2020). Reports indicated that those students are having learning difficulties because they cannot maximize the use of online learning due to uncontrolled circumstances such as poor internet connectivity and those in poverty-driven areas (Adeoye et al., 2020; Azlan et al., 2020; Kapasia et al., 2020).

In the Philippine context, educational sectors such as DepEd for basic education and CHED for the higher education recommended distance learning, exemplifying flexible learning approach which ranges from blended, online, remote, modular, and the combination of during pandemic times (DepEd, 2020; CHED, 2020). As a result, several opportunities and challenges emerged. These include, among others, policy implications, strategies, and issues arising from the new normal education and thus, studies are recommended along with planning and implementation strategy of educational institutions, assessing online and modular learning systems, surveys, and development of instructional materials suited in times of crisis (Tria, 2020).

Several studies have reported different learning modalities across the globe. Most of them migrated to online learning; others utilized remote and modular learning considering its necessity and suitability. With this sudden transition, several problems, challenges, best practices, and opportunities were taken into light by several government agencies, particularly educational institutions (Besser et al., 2020; Dhawan, 2020; Morgan, 2020; Wahab, 2020). Using distance learning as mode of learning, online Google classroom was found to be the most enjoyed learning platform by students (Oktaviani et al., 2020). Although online learning is the best alternative to traditional way of learning, it cannot produce desired outcomes to underdeveloped countries due to slow internet access and poverty issues (Adnan & Anwar, 2020). Therefore, others shifted to remote learning such as modular learning (Toquero, 2021).

Further, numerous studies have been conducted to measure student satisfaction at higher education level on the different learning modalities (online and remote) during the pandemic. Adnan and Anwar (2020) reported that educational organizations need to improve curricula and design suitable content for lectures. Difficulties such as technical and financial issues, facilities and logistics, e-learning technology, response time, and absence of conventional classroom socialization were also highlighted (Abu Hantash et al., 2020; Adnan & Anwar, 2020; Hebebcı et al., 2020). The previously cited challenges and difficulties of online learning were evident among developing countries. However, e-learning satisfaction levels were better among developed countries (Abbasi et al., 2020). This sudden transition, regardless of the learning modality used should be regularly and rigorously evaluated to monitor its effectiveness (Khalil et al., 2020), one of which is student satisfaction (Chen et al., 2020). On a positive note, this pandemic would be an opportunity to improve the utilization of learning tools towards meaningful teaching and learning experiences by both the teachers and the students (Kedra & Kaltsidis, 2020).

The Catanduanes State University (CatSU), located in the eastern part of the Bicol region and the only public state university in the province is mandated to provide higher professional and technical instruction and training in business education and commerce; and for special purposes, to promote research, advance studies, and progressive leadership in the field of education, business education and commerce (CatSU, 2021). Although online education is implemented in most universities, CatSU used modular learning as its flexible learning modality. According to CHed Chairperson Prospero de Vera, "flexible learning focuses on the design and delivery of programs, courses and learning interventions that address the learners' unique needs in terms of pace, place, process and products of learning" (Parrocha, 2020). To respond to this advisory, CatSU immediately conducted a survey among its students to determine the appropriate modality to adopt and to design its learning continuity plan (LCP). Results of the survey conducted revealed that 61% of the students have smartphones but internet connectivity in the island-province was very unstable as claimed by 49% of the students while the remaining percentage have no internet connectivity. During the imposition of the community quarantine which prodded academic institutions to shift almost overnight to online learning, students indicated their problems on internet connectivity, as concluded in the study of De Guzman and Pastor (2020). These results led the administration to decide to finally adopt the modular approach of lesson delivery.

Learning modules vary in different forms such as hard copy or printed, e-copy attached on a flashdrive, e-copy sent via different online platforms or module designed on a learning management system. The first three types were adopted by CatSU as a migration of flexible learning modality. As indicated in the guidelines in the implementation of flexible learning of CatSU, learning materials/modules shall be used taking into consideration of the student's accessibility, which shall be sent in the following ways: via Messenger group chats and other learning management systems, to be copied to USB flashdrive or hard-copy printed material (CatSU, 2020). Learning modules, as a form of individualized instruction, is one idea of flexible learning. It covers a single element of topic or subject matter specifically designed to suit the needs of the students in every discipline towards meeting the desired learning outcomes (Sadiq & Zamir, 2014). A well-designed leaning module effectively facilitates teaching and learning process towards the achievement of program outcomes (Matanluk et al., 2013). The University does not only encourage students to continue learning but to equip students by providing quality education even in times of crisis.

With this, while student satisfaction levels on online learning has been studied recently (Adnan & Anwar, 2020; Baber, 2020; Bahasoan et al., 2020), satisfaction on modular learning is also essential. Education sector has been undergoing profound transformation brought by the pandemic, one of which is the migration from face-to-face classes to online and/or remote learning among schools. With the recently cited studies, students' satisfaction on modular learning has not been explored much. On the student's point of view, satisfaction on their learning experiences is a concern. It was clearly explained by Aldridge and Rowley (1998) that students' satisfaction levels clearly provide learning opportunities and improvement and thus, affect students' academic achievement. Along with the university level, higher education institutions must provide and identify learning modalities that will satisfy the needs and expectations of the students (DeShields Jr et al., 2005). Therefore, the objective of this study is to determine the level of student satisfaction on modular learning at CatSU. Specifically, it answers the following research questions:

1. What is the level of satisfaction on modular learning of the students?
2. Are there significant differences in the level of satisfaction when students are grouped by college and year level?

METHODOLOGY

This study sought to determine the level of student satisfaction on modular learning at CatSU. A survey questionnaire was used to collect the responses from the students enrolled during the first semester, academic year 2020-2021, the first term of implementation of the modular learning. The questionnaire is comprised of two sections. Section 1 consisted of demographic attributes such as year level and college. Section 2 comprised of questions related to satisfaction measured on a 4-point Likert scale anchored by "very much satisfied" (4), "very satisfied" (3), "satisfied" (2), and "not satisfied" (1). A cover letter explaining the purpose and importance of the study, together with the instructions on how the questionnaire will be accomplished were included.

To determine its reliability, Cronbach's alpha was used to test the internal consistency of the survey questionnaire. A coefficient greater than .70 shows that each statement of the survey questionnaire passes

Table 1. Questionnaire data reliability information

Index	Cronbach's <i>a</i> coefficient	Number of questions
Contents of course packages uploaded in the USB (universal serial bus) flashdrive	0.954	9
Learning materials /modules uploaded in the USB (universal serial bus) flashdrive	0.899	3
Learning outcomes for each chapter of the course	0.943	5
Flexibility provided on the course contents	0.928	7
Flexibility provided on the assessment tasks	0.916	4
Student and faculty engagement or communication using	0.847	4
Personalized mentoring/timely response of faculty to student's queries	0.883	2
Monitoring of performance/feedback mechanism	0.926	8
Support services provided	0.836	2
Learning environment at home		
Academic achievement in terms of competencies acquired/learned		
	Total questions	44

Cronbach's alpha=0.984 (scale: all variables)

Table 2. Demographic information of respondents

College	Year level			Population (f)	Sample (f)	%
	1 st	2 nd	3 rd			
College of Agriculture and Fisheries (CAF)	242	142	75	1091	459	42
College of Arts and Sciences (CAS)	283	189	160	1503	632	42
College of Business and Accountancy (CBA)	228	184	148	1333	560	42
College of Health Sciences (CHS)	121	78	61	619	260	42
College of Information and Communications Technology (CICT)	89	66	60	513	215	42
College of Industrial Technology (CIT)	184	230	133	1302	547	42
College of Engineering (COE)	110	97	70	659	277	42
College of Education (COEd)	148	124	110	909	382	42
Total	1,405	1,110	817	7,929	3,332	42

the internal consistency test. Result was 0.984, indicating that the internal reliability of each statement of the survey questionnaire was high. To determine its validity, statements on the survey questionnaire used relevant literature for references and contextualized statements to ensure high content validity. In addition, the guidelines on the implementation of flexible learning (CHED Memorandum Order No.4 S., 2020) was used as a guide in developing the questionnaire. **Table 1** shows the results of the reliability test.

Responses were collected solely from students of CatSU from first to third year across eight colleges of the main campus. Using the stratified random sampling technique, 3,332 students representing 42% of the population per college participated in the study. They answered the questionnaires using Google forms or by filling the printed copy during the onsite enrolment for the second semester of academic year

2020-2021. A retrieval rate of 100% was achieved. Quantitative data were analyzed using frequency count, weighted mean and ANOVA. Demographic information of respondents is shown in **Table 2**.

RESULTS AND DISCUSSION

The objective of this study is to determine the level of student satisfaction on modular learning at CatSU. **Table 3** displays the descriptive analysis of the responses of students along satisfaction on modular learning.

Along contents of course packages uploaded in the USB, the students were "very satisfied" ($\bar{x}=2.53$) on the following: course syllabus, course policies and requirements and assessment tasks/outputs

Table 3. Descriptive statistics: Student's satisfaction on modular learning

Statement on modular satisfaction	Frequency				WM	DR
	1	2	3	4		
Contents of course packages uploaded in the USB (universal serial bus) flash drive						
Course syllabus	125	1,557	952	698	2.67	VS
Course policies and requirements	176	1,500	1,014	642	2.64	VS
Learning activities, exercises and the like	276	1,500	994	562	2.55	VS
List of supplementary learning references/resources	346	1,549	940	497	2.48	S
Schedule of consultation	390	1,613	889	440	2.41	S
Assessment tasks/outputs required	265	1,547	962	558	2.54	VS
Schedule of submission of outputs	399	1,485	920	528	2.47	S
Mechanics of submission of outputs	341	1,553	935	503	2.48	S
Grading system	244	1,564	963	561	2.55	VS
Overall mean					2.53	VS
Learning materials /modules uploaded in the USB (universal serial bus) flash drive						
Coherence between course syllabus and contents of learning material/modules	168	1,687	979	498	2.54	VS
Comprehensive presentation and discussion of lessons/topics	427	1,556	957	392	2.39	S

Table 3 (Continued). Descriptive statistics: Student's satisfaction on modular learning

Statement on modular satisfaction	Frequency					
	1	2	3	4	WM	DR
Provision of relevant and useful supplementary/ enrichment lessons	291	1,691	961	389	2.43	S
Overall mean					2.46	S
Learning outcomes for each chapter of the course						
Specific	231	1,696	985	420	2.48	S
Measurable	222	1,697	1,031	382	2.47	S
Attainable	247	1,689	959	437	2.48	S
Result/outcomes-based	261	1,700	970	401	2.45	S
Time-bound	433	1,639	889	371	2.36	S
Overall mean					2.45	S
Flexibility provided on the course contents						
Access to the learning material	324	1,563	969	476	2.48	S
Topics covered	122	1,585	1,127	498	2.60	VS
Sequence of the topics covered	135	1,626	1,082	489	2.58	VS
Amount of learning activities provided	275	1,541	1,068	448	2.51	VS
Level of difficulty of lessons included in the module	272	1,636	1,003	421	2.47	S
Language used is easy to understand	159	1,478	1,124	571	2.63	VS
Schedule/due dates set (examination dates, assignments/outputs/deadlines)	443	1,497	942	450	2.42	S
Overall mean					2.53	VS
Flexibility provided on the assessment tasks						
Assessment tasks are designed to minimize plagiarism	212	1,590	1,030	500	2.55	VS
Assessment tasks are tailored to the lesson objectives	144	1,652	1,086	450	2.55	VS
Assessment tasks are interrelated within the lesson, subject, or course	126	1,574	1,103	529	2.61	VS
Assessment tasks encourage reflective, analytical, and critical thinking skills.	129	1,457	1,137	609	2.67	VS
Overall mean					2.59	VS
Student and faculty engagement or communication using						
Short message services (SMS)/text messages	526	1,525	875	406	2.35	S
E-mail	479	1,504	875	474	2.40	S
Online chat	208	1,326	1,029	769	2.71	VS
Google classroom	657	1,410	793	472	2.32	S
Overall mean					2.45	S
Personalized mentoring/timely response of faculty to student's queries	393	1,696	848	395	2.37	S
Monitoring of performance/feedback mechanism	358	1,687	876	411	2.40	S
Support services provided such as						
On-site enrolment	212	1,532	997	591	2.59	VS
Psycho-social support	311	1,635	959	427	2.45	S
Guidance and counselling	305	1,578	980	469	2.48	S
Designation of distribution centers	175	1,580	1,058	519	2.58	VS
System for the retrieval of outputs (pick-up points, submission)	211	1,527	1,052	542	2.58	VS
Instructional services provided beyond class schedule	186	1,623	1,034	489	2.55	VS
Flash drive (USB)	290	1,315	1,020	707	2.64	VS
Internet connectivity	1,116	1,358	577	281	2.01	S
Overall mean					2.48	S
Learning environment at home	727	1,564	741	300	2.18	S
Academic achievement in terms of competencies acquired/learned	503	1,697	820	312	2.28	S

Note. 1–Not satisfied; 2–Satisfied; 3–Very satisfied; 4–Very much satisfied; WM–Weighted mean; DR–Descriptive rating

required. However, they were “satisfied” ($\bar{x}=2.41$) on the schedule of consultation. This is probably because prior to the modular approach when students consult the concerned faculty, they meet face-to-face hence, students' concerns, academic or otherwise, are addressed immediately. Students may find interacting with their faculty via online, not equally satisfactory as doing it via face-to-face which is likewise more interactive and personal.

Unilateral interaction using online learning system during the COVID-19 pandemic was also found to be the second most frequent complaint among university students. With the distance learning, direct interaction is not possible and the quality of the educational environment is poor (Fatonja et al., 2020; Ghazi-Saidi et al., 2020; Wardhono et al., 2020). On the learning materials/modules uploaded in the USB, the students were “very satisfied” ($\bar{x}=2.46$) on the

coherence/congruency between the contents of the course syllabus and the learning materials/modules provided to them.

On the other hand, they were “satisfied” ($\bar{x}=2.39$) on the presentation and the discussion of the topics. They suggested that the modules have to be enhanced more in terms of comprehensiveness by providing additional relevant and useful supplementary lessons. Modules indeed are self-learning kits so they have to be complete yet easy to comprehend. They should allow the learners to manage their learning activities independently.

Generally, the students were “satisfied” ($\bar{x}=2.45$) in the learning outcomes set to be achieved for each chapter of the course. They agreed that the outcomes were specific and attainable. In terms of the flexibility provided in the course contents, the students were “very satisfied” ($\bar{x}=2.53$). They found the language used easily understood, the topics

and their sequencing very organized, and the amount of learning activities very adequate. However, they were challenged on the level of difficulty of the lessons and the due dates set for examinations and submission of outputs. Insufficient time, was also found an area where the students gave criticism (Hebebcı et al., 2020). However, students are "very satisfied" ($\bar{x}=2.59$) in terms of flexibility provided on the assessment tasks.

On the means of communications used to allow for student-faculty engagement, students were "satisfied" ($\bar{x}=2.45$). However, it was found out that the students were "very satisfied" ($\bar{x}=2.71$) using the online chat platform. In fact, this is the most popularly used and most accessible compared to other platforms such as google classroom, video/zoom meeting, etc. In distance learning, networking is not only a method of distributing educational material, but also a means of promoting interaction between teachers and students, or among students. The status of internet connectivity in the island hinders the use of other platforms that may foster better student-faculty engagement, hence, more effective teaching-learning process. "Vygotsky's socio-cultural theory views human development as a socially-mediated process in which children acquire their cultural values, beliefs and problem-solving strategies through collaborative dialogue with more knowledgeable members of the society" (McLeod, 2020).

Students were also "satisfied" ($\bar{x}=2.37$) in terms of providing them personalized mentoring and timely responses to their queries including monitoring their performance and providing feedback mechanisms. Again, this can be attributed to weak internet connectivity. The study of Abbasi et al. (2020) revealed likewise that the respondents were "satisfied" with timely response from teachers, feedback on assessment and assignment, and in keeping up with course schedules and deadlines.

In the new normal where both faculty and students are neophytes and the transition from traditional to modular learning was sudden, support services particularly to the students need to be given premium. In terms of the support services CatSU has provided its students, the data showed that the students were "very satisfied" on the following: the free USB provided to them ($\bar{x}=2.64$), the conduct of on-site enrolment ($\bar{x}=2.59$), the designation of distribution centers ($\bar{x}=2.58$), and the system adopted for the retrieval of their outputs ($\bar{x}=2.58$). They likewise expressed their high level of satisfaction on the instructional services provided by the faculty even beyond their class schedule.

However, CatSU has to improve its services along providing the students psychosocial support, guidance and counselling, and most of all, immediate intervention to address the serious problem of internet connectivity. Silva et al. (2017) mention three important factors that influence students' satisfaction namely: teacher/tutor, technology, and interactivity. In the context of teaching-learning environment, the access to technology is one of the most important factors that influence the students' satisfaction.

Of all the indicators included in the study, internet connectivity got the lowest mean ($\bar{x}=2.01$ —"satisfied"). This result finds support in several studies where network instability was identified as area of dissatisfaction among students. (De Guzman & Pastor, 2020; Fatonia et al., 2020; Fauzi & Khusuma, 2020; Ghazi-Saidi et al., 2020; Hebebcı et al., 2020; Wardhono et al., 2020).

Furthermore, concentration serves as an important factor for academic requirement. Bao (2020) says that online class speed must be adjusted to effectively deliver class content while reducing problems regarding student concentration. It is worthy to note likewise, that the learning environment at home of the students is not very conducive as revealed in their responses. This was worsened by the aftermath of super typhoon Rolly, which added to the prevailing abnormal situation, brought about by the COVID-19 pandemic. Poor learning conditions at home was also pointed out as one of disadvantages of online learning Bączek et al. (2021) in addition to reduced interaction with the teacher.

Considering all the above factors, both fostering and restraining, the students have at least expressed that they are "satisfied" ($\bar{x}=2.28$) in terms of their academic achievement based on the competencies they acquired/learned using the modular approach. Similar result was revealed in the study of Abbasi et al. (2020), where majority of the participants agreed that the e-learning was "satisfactory" in acquiring knowledge. An evaluation showed that 78.72% of the medical students are not satisfied on distance learning via SMS. The study also revealed that there was no knowledge gained through SMS by medical students (Sichani et al., 2018).

According to Cavanaugh et al. (2009), online learning requires more time to prepare, revise, and interact with than face-to-face classes. Because of this, it may be difficult to ascertain student achievement using only technological media. Rotas and Cahapay (2020) identified in their study various difficulties faced by the students in online remote learning. These are unstable internet connectivity, inadequate learning resources, electric power interruptions, vague learning contents, overloaded lesson activities, limited teacher scaffolds, poor peer communication, conflict with home responsibilities, physical health compromises, and mental health struggles.

Further analysis using one-way ANOVA was conducted to determine significant differences on the level of satisfaction of students on modular learning when grouped by college and year level. The ANOVA test, as shown in **Tables 4-7**, was statistically significant comparing among colleges, p-value is 0.000, which is less than the significance level of 0.05, computed F-value (2.036) is lower than the tabular value of 9.460 and year level, p-value is 0.016, which is less than the significance level of 0.05, computed F-value (3.066) is lower than the tabular value of 4.275) in terms of student's satisfaction on modular learning. This means that the level of satisfaction of students on modular learning are different across colleges and year levels. These

Table 4. Comparing means across colleges

Colleges	Overall weighted mean	Descriptive rating	Variance
College of Agriculture and Fisheries (CAF)	2.57	VS	0.012
College of Arts and Sciences (CAS)	2.44	S	0.014
College of Business and Accountancy (CBA)	2.46	S	0.025
College of Health Sciences (CHS)	2.41	S	0.027
College of Information and Communications Technology (CICT)	2.38	S	0.020
College of Industrial Technology (CIT)	2.52	VS	0.014
College of Engineering (COE)	2.52	VS	0.021
College of Education (COEd)	2.53	VS	0.032

Table 5. Comparing means across colleges (t-test)

Source of variation	SS	df	MS	F	p-value	F-critical
Between groups	1.362	7.000	0.195	9.460	0.000	2.036
Within groups	7.077	344.000	0.021			
Total	8.439	351.000				

Table 6. Comparing means across year levels

Year level	Overall weighted mean	Descriptive rating	Variance
First year	2.480	S	0.014
Second year	2.455	S	0.018
Third year	2.538	VS	0.025

Table 7. Comparing means across year levels (t-test)

Source of variation	SS	df	MS	F	p-value	F-critical
Between groups	0.162	2	0.081	4.275	0.016	3.066
Within groups	2.450	129	0.019			
Total	2.612	131				

findings somehow contradicts to the result of the study conducted by Abu Hantash et al. (2020), Rhema and Miliszewska (2014), Sulaiman and Dashti (2018), and Yu and Yang (2013) that there are no significant differences on the level of satisfaction of students when grouped by college and by year level and need further investigation to validate these findings.

CONCLUSIONS AND RECOMMENDATIONS

Generally, the weighted mean in the indicators presented showed that the students' level of satisfaction on modular learning has varying degree of strength from "very satisfied" ($\bar{x}=2.71$) to "satisfied" ($\bar{x}=2.01$) in the different indicators covered by the study. Not one among the indicators got a weighted mean with descriptive equivalent of "very much satisfied" ($\bar{x}=3.26$ to 4.00). Similarly, not one indicator obtained a weighted mean equivalent to "not satisfied" ($\bar{x}=1.00$ -1.75). It is therefore recommended that the indicators where students are "very satisfied" be strengthened more to meet the expectations of students so that a "very much satisfied" response can be achieved. While those rated "satisfied" be revisited and propose appropriate interventions to make modular learning comparable with the traditional face-to-face modality in terms of achieving expected learning outcomes. Since the major issue on modular learning is connectivity, addressing internet access and bandwidth needs preferential attention by the local government unit and CatSU. Further investigation is needed to validate the findings. Studies not only exploring on student satisfaction but also satisfaction among faculty members of the institution on the implementation of modular learning amidst pandemic is also recommended.

Author contributions: All authors were involved in concept, design, collection of data, interpretation, writing, and critically revising the article. All authors approve final version of the article.

Funding: The authors received no financial support for the research and/or authorship of this article.

Declaration of interest: Authors declare no competing interest.

Data availability: Data generated or analyzed during this study are available from the corresponding author on request.

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