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Short Paper

Students' Evaluation of the Instructional Learning Modules for Application Development and Emerging Technologies Course

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Abstract

This study aimed to evaluate the instructional learning modules used for Application Development and Emerging Technologies course. Specifically, it evaluates the content, teaching and learning, support and feedback, and assessment variables through student perspectives. It also seeks to understand the views of the students on what they like the most about the learning modules as a basis for continuous improvement. A descriptive research design was utilized to give a quantitative or numeric depiction of trends, attitudes, or views of that group. The instrument was based on a university modules evaluation questionnaire. It was modified to suit the context of the study. The questionnaire was composed of the following variables: content, teaching and learning, support, and feedback and assessment. The instrument was subjected to face validity, content validity, and reliability analysis. The frequency distribution, percentage distribution, and weighted mean were used to calculate the level of agreement and satisfaction. The findings suggest that students were very satisfied with the content, teaching and learning, support, feedback, and assessment utilized in the learning modules for Application Development and Emerging Technologies course. The results further highlight some essential insights from the respondents that instructors may consider when improving the instructional material. It can be concluded that students were very satisfied with the learning modules used for the Application Development and Emerging Technologies course. Further, the following considerations may be reviewed for future improvement of the learning material: ensuring that the contents are complete, informative, interesting, organized, and detailed; ensuring that the contents are relevant

to the course, easy to understand, and valuable; challenging, inexpensive, and accessible, allowing students to develop and acquire a new set of knowledge and skills; assessment tasks that can be challenging but fun to execute, and allowing the students to increase interest in reading the contents of the learning modules.

Keywords – evaluation, higher learning institutions, instructional materials, learning modules, student assessment

INTRODUCTION

The teaching-and-learning process has been greatly affected by the global health crisis called the coronavirus disease or COVID-19 since its outbreak was reported in Wuhan, China in December of 2019 (Yang et al., 2020). The unprecedented disruption has caused schools, colleges, and universities to close to reduce contact and save lives (Burgess & Sievertsen, 2000). Unfortunately, it has greatly affected the education of learners, including the way they learn things and develop essential skills, which learning institutions primarily provide.

Numerous higher learning institutions have equipped the members of the academic community with the essential knowledge and skills to address the needs of the learners, including how to design and develop instructional learning modules for undergraduate students. The process of the design and development of instructional learning modules has 11 main steps based on the Meyer Model, which include assessing the need for developing a module, deciding the module format, identifying and describing characteristics of the learners, developing objectives of the module in behavioral terms, developing criterion measures of learning outcomes, and analyzing skills and knowledge related to the objective to be included in the learning module. Moreover, selecting the content is a vital step in the design and development of learning modules. Selecting instructional activities and media; sequencing learning activities and developing module prototypes; testing learning modules with a sample of the target group; analyzing tryout data for revision of the learning module; and if satisfied, production of the learning module; otherwise, revision of the learning module. (Meyer, 1988; Kiong, et al., 2012)

In the Philippines, the pandemic has caused learning institutions to devise various learning modules to supplement the teaching and learning process. It has empowered and challenged educators to design and develop learning materials to contribute to the continuous delivery of instruction despite the pandemic.

This study aims to present the evaluation of the students on the learning modules used for the Application Development and Emerging Technologies course to provide insights into how undergraduate students look at the instructional learning modules used

for the delivery of instruction. The results may also be a basis for the enhancement of learning modules in the future. The following section of this paper includes the review of related literature focusing on the learning modalities and their impact on teaching and learning; instructional materials and their importance to teaching and learning; and the importance of evaluating developed learning modules. The research problem is then presented, followed by the methodology employed, the results and discussion, and finally conclusions and recommendations.

LITERATURE REVIEW

Learning Modalities and Its Impact on Teaching-and-Learning

Educators have been striving and doing a lot to constantly assist learners through various learning modalities in the face of the global health crisis. In the new normal, several learning modes may be explored. According to Pimentel-Tibon (2020), schools may use one or a mixture of the following modalities, depending on local health conditions, available resources, and the learners' specific environment in the school or community. Face-to-face, remote learning, blended learning, and homeschooling are all examples of this.

Face-to-Face is a teaching method in which both students and teachers are physically present in the classroom, allowing for active involvement, quick feedback, and learners' socio-emotional growth. This method can only be used in extremely low-risk regions with no history of illness, easily monitored external connections, and instructors and learners who live close to the school (Pimentel-Tibon, 2020). Paul and Jefferson (2019) asserted that face-to-face classroom instruction is a well-established instructional medium in which teaching-and-learning processes have been refined over several centuries. Xu and Jaggars (2016) also explained that face-to-face instruction has numerous benefits not found in its online counterpart. Still, due to the increasing number of active cases at 161, 447 (WHO, 2021), this has not been possible in the Philippines as of September 2021, making the country and Venezuela the two remaining countries that have not yet resumed physical classes in schools (Limos, 2021). With the opening of classes for the school year 2022-2023, learning institutions in the Philippines have started to conduct limited face-to-face. The distance learning modality, on the other hand, refers to the form of education in which the teacher and learners are separated geographically. In this setting, homes play a vital role in the establishment of learning spaces for effective academic performance. Napoles, Generold, and Ticmon (2023) expressed that environmental factors in the learning space at home contribute to the academic performance of the students taking online programs during the pandemic. Modular distance learning, online distance learning, and television/radio-based education are all types of this learning paradigm. Independent learners may be able to do so, but they must have the guidance of their parents or guardians (Pimentel-Tibon, 2020).

Blended learning modalities are those that integrate face-to-face education with any or all of the following: modular distance, online distance, and television/radio-based training. This sort of learning modality, according to Pimentel-Tibon (2020), allows schools to minimize face-to-face learning, assure social distance, and reduce the number of individuals outside the house at any one moment. Finally, homeschooling strives to provide learners with a high-quality basic education guided by trained parents, guardians, or tutors who have completed the necessary training in a home-based setting (Pimentel-Tibon, 2020).

Instructional Materials and Its Importance in Teaching-and-Learning

Instructional Materials (IMs) are relevant elements to achieving effective delivery of instruction. Instructional materials are both print and non-print materials used to convey knowledge to learners during the learning process. Prints, textbooks, periodicals, newspapers, slides, photographs, workbooks, and electronic media are examples of instructional resources (Dahar & Faize, 2011). Instructional materials are devices or objects employed by teachers to facilitate the teaching-and-learning process (Esiobu, 2005). As expressed by Abubakar (2020), IMs contribute to the improvement of the academic performance of learners. Thus, IMs are essential elements in the delivery of quality instruction and the achievement of learning objectives.

In today's generation, quality education is continuously improved and developed through the different efforts and activities of learning institutions for the benefit of learners. The use of instructional materials is intended to increase the quality of education for students to achieve better academic results (Ajoke, 2017). Through instructional materials, learning abstract concepts are facilitated by concretizing ideas and stimulating the minds of the learners (Esu, Enukoha, & Umoren, 2004). Properly designed instructional materials also contribute to the increase in engagement and motivation among the learners. Also, selecting, designing, and/or using appropriate IMs are advantageous and useful in the teaching-and-learning process for both the learners and the teachers (Haruna, 2022). Thus, IMs improve the learning process (Amadioha, 2009).

As cited in Ajoke (2017), the utilization of instructional resources makes teaching more successful because it allows students to actively participate in the teaching and learning process, which leads to higher accomplishment. Kochhar (2012) also asserts that instructional materials are very significant teaching and learning tools. Hence, teachers must look for necessary, relevant, and appropriate materials to complement instruction and increase student engagement.

The utilization of instructional materials improves students' memory, facilitates the teaching-learning process, and increases their accumulation rate. It also assists teachers in correcting misconceptions among students, providing personal lessons,

encouraging teacher innovation, and allowing students and teachers to learn activities that promote the concept of self-evaluation in tangible terms (Baker, et al, 2001). Instructional materials also influence the attainment of student learning outcomes in schools (Muraina, 2015). Thus, the integration of appropriate IMs into different courses is necessary for the effective learning process.

The advantages and benefits of using instructional materials include enabling teachers to teach conveniently and learners to acquire knowledge and develop new skills easily (Olumorin et al., 2010). Also, instructional materials are cheaper to produce, useful in teaching a large number of students at a given time, help in encouraging learners to increase pay higher levels of attention, and enhance the student's interest (Abolade, 2009).

During the pandemic, learning institutions have improved the quality of instructional materials such as learning modules because they are critical in the delivery of flexible learning to learners. Teachers are trained and equipped with the necessary knowledge and skills to develop high-quality instructional materials. Various pieces of training and workshops have been conducted and participated in by different stakeholders with an interest in learning modules writing and development. According to Abdu-Raheeman (2011), the lack of availability and appropriateness of teaching resources like learning modules are key reasons for the educational system's inefficiency and low performance. Thus, it is highly encouraged that learning institutions be able to produce quality instructional learning modules for the learners and the attainment of high-quality education.

Importance of Evaluating Instructional Materials

Formal assessment and students' self-evaluation are both important components of the teaching and learning process, as they serve as indicators of the effective acquisition of required knowledge and help students to refine their learning techniques (Colthorpe et al., 2018). The same goes for instructional materials. To refine the materials' use for the learning process, evaluating instructional learning modules is also important.

While previous studies have been undertaken to evaluate various instructional materials in different disciplines, the present study aims to contribute to filling in the knowledge gap regarding the process of evaluating instructional materials in the context of learning materials used for computing courses. Further, the researcher aims to contribute to the growing body of literature available to provide new insights and information about the topic under investigation.

By enabling the learners to participate in evaluating the quality of learning modules, it ensures that the instructional material covers the essential elements that greatly contribute to the acquisition of knowledge and the development of new skills

among them. Understanding the views of the learners towards the instructional learning modules contributes to the enhancement of the learning contents, teaching-and-learning strategy, support mechanism, and assessment and feedback.

Statement of the Problem

This study aims to evaluate the learning modules used for the Application Development and Emerging Technologies course. In particular, it aims to answer the following:

1. What is the student's evaluation of the Application Development and Emerging Technologies course learning modules in terms of:
   1.1. Contents;
   1.2. Teaching and Learning;
   1.3. Support; and
   1.4. Assessment and Feedback?
2. What is the overall level of student satisfaction with the Application Development and Emerging Technologies course learning modules?
3. What do students like the most about the learning modules in Application Development and Emerging Technologies course?

METHODOLOGY

Research Design

Research design is a procedure of inquiry made by the researcher. In this study, the researcher utilized a quantitative approach. In particular, the researcher employed a descriptive research design to analyze a sample of a population to give a quantitative or numeric depiction of trends, attitudes, or views of that group. It comprises studies that collect data using questionnaires to extrapolate findings from a sample to the entire population (Creswell, 2014; Fowler, 2008). This study made use of the descriptive research design to answer the research problems to provide a clearer understanding of the evaluation made by the students on the learning modules used for the Application Development and Emerging Technologies course.

Research Locale and Respondents

The study was conducted at a higher learning institution in Nueva Ecija, Philippines. Respondents were from the second-year level enrolled in the Application Development and Emerging Technologies course during the second semester of Academic Year 2020-2021. The population under investigation was 157. Using a 95% confidence level and a 10% margin of error, the expected sample size is 60. Using random sampling, sixty-three

students participated in this study. It was comprised of forty-two male (66.7%) and twenty-one (33.3%) female students.

The Application Development and Emerging Technologies course are one of the core computing courses for the information technology undergraduate program. The study was conducted when learning institutions encouraged educators to design and develop learning materials to supplement the delivery of instructions. Thus, the study was conceptualized.

Research Instrument

The instrument was composed of three parts. The first part assesses the content, teaching and learning, support, and assessment and feedback of the learning module. The second part was used to evaluate the overall satisfaction of the students in using the learning modules. The last part of the instrument covers open-ended questions to know the features or things that the students like the most about the learning modules.

The instrument was based on a university modules evaluation questionnaire. The researcher ensured that the instrument was valid and reliable by allowing other researchers to review the face and content validity of the instrument. Through e-mail, Facebook messenger, and phone calls, the researcher collected comments from the reviewers of the instrument to improve its validity. Minor revisions were made, including contextualizing items to suit this study.

For the data analysis, the weighted mean was used by the researcher to analyze the responses of the respondents to research questions 1 and 2. For research question 3, the researcher classified the responses and computed their percentages to identify their ranks.

Meanwhile, reliability analysis was conducted using the Statistical Package for the Social Sciences version 26. The computed Cronbach's Alpha for all the variables is presented in Table 1. For the response mode, the researcher used a 4-point Likert Scale as shown in Table 2, followed by the scoring guide as shown in Table 3. The contents of Table 3 were based on the study of Olipas and Cochanco (2021) but were modified to suit the context of this study.

Table 1. Reliability Analysis

VARIABLE	CRONBACH'S ALPHA	INTERPRETATION
Contents	0.825	Good
Teaching and Learning	0.854	Good
Support	0.870	Good
Assessment and Feedback	0.822	Good
Overall Student Satisfaction	0.920	Excellent

Table 2. Response Mode

NUMERICAL RATING	VERBAL DESCRIPTION
4	Strongly Agree
3	Agree
2	Disagree
1	Strongly Disagree

Table 3. Scoring Guide

NUMERICAL RATING	VERBAL DESCRIPTION FOR LEVEL OF AGREEMENT	VERBAL DESCRIPTION FOR LEVEL OF SATISFACTION
3.25 – 4.00	Strongly Agree	Very Satisfied
2.50 – 3.24	Agree	Satisfied
1.75 – 2.49	Disagree	Dissatisfied
1.00 – 1.74	Strongly Disagree	Very Dissatisfied

Data Gathering Procedure

In the conduct of data gathering, the researcher employed a series of activities including (1) designing the research instrument based on the result of reviewing related literature and studies and other sources; (2) seeking permission to conduct the study; (3) explaining to the respondents about the purpose of the study and seeking their approval to voluntarily participate; (4) administration of the instrument via Google Form; (5) retrieval of the accomplished instrument; and (6) organization and analysis of collected data.

In the process of designing the research instrument, the researcher browsed, read, collected, and analyzed related studies that would aid in improving the instrument adapted for this study. The context of the respondents was also considered to apply the necessary modifications needed to illicit the vital data needed for this study. In the process of seeking permission to conduct the study, the researcher sought the approval of the dean of the college to conduct data-gathering activities. After the approval was given, the researcher then started the data gathering activity through Google Forms. An online data gathering tool was utilized because the conduct of the activity happened at the time of the pandemic. An alternative tool to gather data was used to ensure the safety of the respondents and the researcher. The researcher indicated in the instrument

the essential instructions and information that the respondents needed to know before participating. Questions and clarifications were provided to give a clearer understanding of the conduct of the study. The researcher ensured the respondents that no type of harm would be inflicted. The researcher also followed research ethical procedures.

RESULTS

Content

Students' evaluation of the learning modules in terms of their contents is shown in Table 4. The evaluation result shows that the students were able to receive explicit information and guidance on what the modules covered and how the assessment would take place (WM = 3.29). The learning modules increased students' understanding of the course (WM = 3.19); students were able to acquire and develop skills that will help them in their careers (WM = 3.17); the learning modules' contents were up-to-date (WM = 3.33) and relevant to their course (WM = 3.44).

Table 4. Contents

ITEMS	WEIGHTED MEAN	VERBAL DESCRIPTION
At the start of the module, I received clear information and guidance on what the module covered and on assessment details.	3.29	Strongly Agree
My understanding of the subject has increased as a result of taking this module.	3.19	Agree
The module allowed me to gain skills that will aid in my employability or career advancement.	3.17	Agree
The module contents were up-to-date.	3.33	Strongly Agree
The module was relevant to my course.	3.44	Strongly Agree
OVERALL GRAND MEAN	3.28	
VERBAL INTERPRETATION	Very Satisfied	

Teaching and Learning

In terms of teaching and learning, the student's evaluation of the learning modules got an overall grand mean of 3.37, interpreted as very satisfactory, as shown in Table 5. Specifically, the students strongly agree that the instructors covered all the essential topics for the course, as reflected in the weighted mean rating of 3.41. Also, as shown in the computed weighted mean rating of 3.44, students strongly agree that the instructors explained things covered in the learning modules. It was also found that the students strongly agree that the learning modules are intellectually stimulating, as shown by the weighted mean rating of 3.32. In addition, the teaching methods used helped the students learn and acquire new knowledge, as reflected in the computed weighted mean

rating of 3.30. Lastly, the students viewed the quality of teaching employed in the learning module as good, with a weighted mean rating of 3.38.

Table 5. Teaching and Learning

ITEMS	WEIGHTED MEAN	VERBAL DESCRIPTION
The instructor has made the subject matter covered in the module interesting.	3.41	Strongly Agree
The instructor was good at explaining things.	3.44	Strongly Agree
The module was intellectually stimulating.	3.32	Strongly Agree
The teaching methods in this module have helped me to learn.	3.30	Strongly Agree
The quality of teaching in this module has been good.	3.38	Strongly Agree
OVERALL GRAND MEAN	3.37	
VERBAL INTERPRETATION	Very Satisfied	

Support

Table 6 presents the results of the student's evaluation in terms of the support that the learning modules provide. Students strongly agree that the learning modules were well organized (WM = 3.41). The resources provided in the learning modules were helpful for them to acquire new knowledge and develop a new set of skills (WM = 3.38). Students also strongly agree that the reading list provided was helpful as supplementary learning materials (WM = 3.29). In terms of the support coming from the instructors, students strongly agree that they can quickly contact the instructors for immediate feedback and assistance about the lesson (WM = 3.33). Lastly, the students strongly agree that they have received good advice and guidance about the topics covered in the learning modules.

Table 6. Support

ITEMS	WEIGHTED MEAN	VERBAL DESCRIPTION
The module was well organized.	3.41	Strongly Agree
The learning resources provided on the module websites/links were helpful to my learning.	3.38	Strongly Agree
The reading list was helpful.	3.29	Strongly Agree
I have been able to contact the course instructor when I needed to.	3.33	Strongly Agree
I have received sufficient advice and guidance concerning my module.	3.29	Strongly Agree
OVERALL GRAND MEAN	3.34	
VERBAL INTERPRETATION	Very Satisfied	

Assessment and Feedback

In Table 7, the result of the evaluation of the learning modules assessment and feedback is shown. Based on the evaluation made, the assessment requirements and making criteria in the learning modules were clear (WM = 3.37). The assessment tasks and associated marking criteria were made available in good time (WM = 3.37). Also, there is a balance between the teaching hours and the independent learning sessions (WM = 3.30). Further, the contents of the learning modules prepared the students for the assessment tasks (WM = 3.40). Lastly, the instructors' feedback was helpful for the student's growth and improvement (WM = 3.40). Overall, the students strongly agreed that the assessment and feedback mechanisms were satisfactory (WM = 3.37).

Table 7. Assessment and Feedback

ITEMS	WEIGHTED MEAN	VERBAL DESCRIPTION
The assessment requirements and marking criteria were clear.	3.37	Strongly Agree
The assessment tasks and associated marking criteria were made available in good time.	3.37	Strongly Agree
The balance between teaching and independent learning was appropriate.	3.30	Strongly Agree
The module prepared me well for the assessment tasks.	3.40	Strongly Agree
Feedback throughout the module has helped me to develop and improve my learning.	3.40	Strongly Agree
OVERALL GRAND MEAN	3.37	
VERBAL INTERPRETATION	Very Satisfied	

Overall Student Satisfaction

As shown in Table 8, the students strongly agree that they are very satisfied with the quality of the learning modules as reflected in the computed weighted mean of 3.40. They were very satisfied with the contents, teaching and learning, support, and assessment and feedback mechanisms of the learning modules. This result suggests that students have acquired significant and essential knowledge related to and beneficial to their course through the learning modules.

The study by Rojabalee and Santally (2020) shows that there is a positive correlation between satisfaction and engagement and a weak but positive correlation between satisfaction and engagement with the student's overall performance. The overall satisfaction of the students in the learning modules assessed in this study may have contributed to their academic performance. Thus, it is essential to conduct an assessment of developed learning modules to check and see how this could impact the

acquisition of new learning, development of new skills, and enhancement of prior knowledge among the learners.

Table 8. Overall Satisfaction

ITEM	WEIGHTED MEAN	VERBAL DESCRIPTION
Overall, I am satisfied with the quality of this module.	3.40	Strongly Agree
VERBAL INTERPRETATION	Very Satisfied	

What do Students like the Most about the Learning Modules?

As shown in Table 9, respondents have shared their additional insights about what they like the most about the learning modules. The responses from the open-ended questions were clustered and organized to create valuable answers that may become an additional basis for future improvements to learning modules. The respondents are interested and engaged when learning modules have complete, informative, engaging, organized, and detailed content.

Table 9. What Respondents Like the Most about the Learning Modules

RESPONSES	PERCENTAGE	RANK
The contents of the learning modules are complete, informative, interesting, organized, and detailed.	32.65	2
The contents of the learning modules are relevant to the course, easy to understand, and useful for the course.	55.10	1
The contents of the learning modules are challenging yet fun, save money, allow the acquisition of new knowledge and develop new skills, and help improve students' time management.	30.61	3
The learning modules complement the discussion of the instruction makes learning more fun, and assessment tasks can be performed easily.	22.45	4
Students with lower interest in reading learning modules struggle in the lesson.	6.12	5

Respondents also look at how the contents are relevant to their course, how they can be easily understood, and how they may be helpful. Further, respondents thought that the contents of the learning modules could be challenging yet fun to do, cheap, allows the acquisition of new knowledge and develop new skills, and help them improve their time management. Lastly, respondents appreciate that the learning modules complement the discussions, make the teaching and learning sessions fun, and efficiently assess. However, respondents look forward to the learning modules that may help them improve their interest in reading learning materials. This has been the most common concern among the survey respondents. This opens new opportunities in the future to make the learning modules engaging for students with low interest in reading learning

materials. Accordingly, it is important to design well-structured courses, maintain regular communication, and promote student engagement to have greater student satisfaction (Eom et al., 2006).

DISCUSSION

The contents of learning modules are significantly relevant for the effective acquisition of knowledge and the development of new skills among learners. Without reliable content, learning is not effective. Thus, content is at the heart of learning. As cited by Troop et al. (2020), there must be an interaction between the learner and content to have effective acquisition and development of new knowledge. In developed learning materials like the developed learning module for the Application Development and Emerging Technologies course, educators must actively engage in incorporating interesting content to stimulate interest and increase motivation among the learners. In this manner, better academic performance may be observed.

Meanwhile, the practice of delivering effective teaching and learning activities through learning modules must also be observed, for it contributes to the overall learning experiences of the students. According to Sadiq and Zamir (2014), the modular approach to teaching and learning is effective in the teaching and learning process because it provides chances for more active student participation and self-directed learning. Also, students are allowed to learn at their own pace. Thus, having engaging teaching and learning features in a learning module is essential to contribute to the overall learning experience of students.

Ensuring that the learning modules have a support mechanism allows the students to reach out to teachers easily. Learning modules must be able to provide this feature effectively to monitor and ensure that learning takes place even if students are outside the usual face-to-face learning set-up. Lastly, assessment and feedback play an essential role in measuring the amount of learning among the students. Learning modules must provide different ways to assess the learners. Authentic assessments are necessary. Also, formative and summative assessments must be included to holistically measure the knowledge of the students.

CONCLUSIONS AND RECOMMENDATIONS

This study aims to evaluate the instructional learning materials used for the Application Development and Emerging Technologies course. Specifically, it made the student-respondents evaluate the learning modules in their content, teaching and learning, support, and assessment and feedback. Results revealed that students strongly agreed that the variables under investigation were very satisfactory for them. Overall, the respondents were very satisfied with the learning modules.

Based on the findings and conclusion, the following are the recommendations: (1) for future development of learning modules in other courses, the results of this study may be considered to achieve an acceptable response from the students; (2) the responses of the respondents to the open-ended question may be a basis for improving existing learning modules; (3) for future improvement of the learning modules in application development and emerging technologies, instructors may review the content, teaching and learning, support, and assessment and feedback so that it suits the needs of the learners; (4) Future studies may include a larger number of research participants, and (5) inclusion of teachers as participants may be considered in the future.

Practical implications of this study may include: (1.) when the recommendations of this study are fulfilled, the results of this study would become more meaningful as it contributes to the improvement of the quality of instruction being rendered to undergraduate students; and (2.) future researchers may look at the relevant findings of this study to support future claims or add to the existing growing body of knowledge.

REFERENCES

Abdu-Raheem, B. O. (2011). Availability, adequacy, and utilization of social studies instructional materials in Ekiti state secondary schools. *Journal of Current Discourse and Research, 3,* 242-255

Abolade, A. O. (2009). Basic criteria for selecting and using learning and instructional materials. In I.O. Abimbola & A.O. Abolade (Eds.), *Fundamental principles and practice of instruction* (pp. 497-504). Department of Science Education, Ilorin.

Abubakar, M. B. (2020). Impact of instructional materials on students' academic performance in physics, in Sokoto-Nigeria. 2nd *International Conference on Civil & Environmental Engineering*. IOP Conference Series: Earth and Environmental Sciences, *476*. https://www.doi.org/10.1088/1755-1315/476/1/012071

Amadioha, S. W. (2009). The importance of instructional materials in our schools: An overview. *New Era Research Journal of Human, Educational, and Sustainable Development*, 2(3 & 4), 61-63

Ajoke, A. R. (2017). The importance of instructional materials in teaching English as a second language. *International Journal of Humanities and Social Science Invention,* 6(9), 36-44

Baker, N. A., Sept, D., Joseph, S., Holst, M. J., & McCammon, J. A. (2001). Teaching methods. *Proceedings of the National Academy of Sciences,* 98(18), 10037-10041.

Burgess, S., & Sievertsen, H. (2020). *Schools, skills, and learning: The impact of COVID-19 on education*. Retrieved from https://voxeu.org/article/impact-covid-19-education

Colthorpe, K., Sharifirad, T., Ainscough, L., Anderson, S., & Zimbardi, K. (2018). Prompting undergraduate students' metacognition of learning: Implementing meta-learning assessment tasks in the biomedical sciences. *Assessment & Evaluation in Higher Education,* 43, 272–285. https://www.doi.org/10.1080/02602938.2017.1334872

Creswell, J. (2014). Research design: Quantitative, qualitative, and mixed method approaches (4th edn.). *SAGE Publications Inc.*

Dahar, M. A. & Faize, F. A. (2011). Effects of the availability and use of instructional materials on academic performance of students in Punjab (Pakistan). *Middle Eastern Finance and Economics*, 11, 6-18, http://www.eurojournals.com/MEFE.htm

Esiobu, G. O. (2005). Development genre issues in science and technology education for development. *NERDC Press Lagos*, 137-156

Eom, S. B., Ashill, N., & Wen, H. J. (2006). The determinants of students' perceived learning outcomes and satisfaction in university online education: An empirical investigation. *Decision Sciences Journal of Innovative Education*, *4*(2), 215-235

Esu, A. E. O., Enukoha, O. I. T., & Umorem, G. U. (2004). *Curriculum development in Nigeria for colleges and universities*. Owerri: Whyte and Whyte Publishers.

Fowler, F. J. (2008). *Survey research methods* (*4th edn.*). Thousand Oaks, CA: Sage.

Haruna, P. (2022). Design, extent of use, and usefulness of instructional materials by student teachers on teaching practice – The mentor's assessment. *International Journal of Research and Innovation in Social Sciences*, *6*(6), 394-398.

Kiong, T. T., Yunos, J. M., Mohammad, B., Othman, W., Heong, Y. M., & Mohamad, M. M. (2012). The development and implementation of Buzan mind mapping module. *Procedia Social and Behavioral Science, 69,* 705-708. https://www.doi.org/10.1016/j.sbspro.2012.11.464

Kochhar, S. K. (2012). *The teaching of social studies.* New Delhi, India: Sterling Publishers Private Limited.

Limos, M. (2021). *Only two countries in the world have yet to resume face-to-face classes*. Esquire. https://www.esquiremag.ph/politics/opinion/countries-reopen-schools-except-philippines-venezuela-a00293-20210909

Meyer, G. R. (1988). *Modules from design to implement* (2nd edn.). Filipina: Colombo Plan Staff College for Technician Education.

Muraina, M. B. (2015). Relevance of the use of instructional materials in teaching and pedagogical delivery: An overview. In N. Ololube, P. Kpolovie, & L. Makewa (Eds.), *Handbook of Research on Enhancing Teacher Education with Advanced Instructional Technologies* (pp. 145-165). IGI Global. https://www.doi.org/10.4018/978-1-466608162-0.ch008

Napoles, M. A., Generold, A., & Ticmon, C.A. (2023). The effects of learning spaces at home on the students' performance in new normal. *Puissant,* 4, 801-821. https://www.puissant.stepacademic.net/puissant/article/view/180

Olipas, C. N. P., & Cochanco, R. A. G. (2021). The information technology students' cognitive determinants and its relationship to academic performance. *International Journal of Advanced Engineering Research and Science, 8*(3), 381-389 https://www.dx.doi.org/10.22161/ijaers.83.39

Olumorin, C. O., Yusuf, A, Ajidagba, U. A. & Jekayinfa, A. A. (2010). Development of instructional materials from local resources for art-based courses. *Asian Journal of Information Technology*, 9(2), 107-110.

Paul, J. & Jefferson, F. (2019). A comparative analysis of student performance in an online vs face-to-face environmental science course from 2009 to 2016. *Frontiers of Computer Science, vol.*(no.), 1(7), 1-9, https://doi.org/10.3389/fcomp.2019.00007

Pimentel-Tibon, J. (2020). *The new normal in basic education*. ACCRALAW. https://accralaw.com/the-new-normal-in-basic-education/

Rajabalee, Y. B., & Santally, M. I. (2021). Learner satisfaction, engagement, and performances in an online module: implications for institutional e-learning policy. *Education and Information Technologies, 26*, 2623-2656. https://www.doi.org/10.1007/s10639-020-10375-1

Sadiq, S. & Zamir, S. (2014). Effectiveness of modular approach in teaching at university level. *Journal of Education and Practice, 5*(17), 103-109.

Troop, M., White, D., Wilson, K. E., & Zeni, P. (2020). The user experience design for learning (UXDL) framework: The undergraduate student perspective. *The Canadian Journal for Scholarship of Teaching and Learning*, *11*(3), 1-25 https://www.doi.org/10.5206/cjsotl-rcacea.2020.3.8328

Yang, J., Zheng, Y., Gou, X., Pu, K., Chen, Z., & Guo, Q. (2020). Prevalence of comorbidities in the novel Wuhan coronavirus (COVID-19) infection: A systematic review and meta-analysis. *International Journal of Infectious Diseases, 94*, 91–95, https://www.doi.org/10.1016/j.ijid.2020.03.017

Xu, D., & Jaggars, S. S. (2016). Performance gaps between online and face-to-face courses: Differences across types of students and academic subject areas. *The Journal of Higher Education, 85*, 633-659. https://www.doi.org/10.1353/jhe.2014.0028

WHO. (2021). *Philippines coronavirus disease 2019 (COVID-19) situation report #85 as of September 27, 2021: Data reported by the department of health*. World Health Organization.https://www.reliefweb.int/report/philippines/philippines-coronavirus-disease-covid-19-situation-report-86-27-september-2021