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E-Learning: Teaching Effectiveness to Conventional Teaching in Undergraduates amid COVID-19 Pandemic

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Abstract

With the spread of the COVID-19, many educational institutions have shifted from face-to-face classes to online learning modalities, and this immediate shift has challenged both teachers and students. The adaptation of e-learning was a way to cope and ensure the continuation of many undergraduate students' teaching and learning processes. The study aimed to rank the effectiveness and satisfaction of the students in their experience with e-learning and compare the satisfaction between online instruction and modular instruction. A total of 412 students participated in the study and utilized a survey questionnaire that assessed the effectiveness of instruction and measured the satisfaction of the students learning experience. The result of the study shows that e-learning is just as effective as face-to-face classes and learners are neither satisfied nor dissatisfied with their learning experience. Furthermore, students who opted for online classes are more satisfied with their learning experience than learners who opted for modular instruction.

Subject Areas

Teaching

Keywords

COVID-19, E-Learning, Teaching Effectiveness, Online Learning

1. Introduction

In March of 2020, the World Health Organization (WHO) declared COVID-19 a pandemic and an international public health concern. The pandemic has caused great distress and panic among the general population, from children to senior

citizens [1]. With its expected spread, the Philippine government recommended the suspension of face-to-face classes in all educational institutions. The suspension was challenging for the educational industry to cope with and adjust to the COVID-19 pandemic [2]. Higher educational institutions adopted the e-learning mode of learning with many trials and errors in its process. College students are experiencing difficulty adapting to the current change and the e-learning process [3].

E-learning was coined by Bernard Luskin and describes that e-learning is internet-enabled learning. E-learning possesses and stores varied educational information, communication, exercise, knowledge, and presentation [4]. E-learning incorporates a pedagogical method that typically aspires to be engaging, learner-centered, and, most importantly, flexible. E-learning differs from traditional face-to-face learning. As e-learning is not conducted in a classroom environment compared to traditional instruction, e-learning also affects the teaching and learning process [5].

However, due to the limited resources and confines in a developing country like the Philippines, the e-learning method of teaching is a significant challenge [6]. To address the concern of the college students, the institutions have adopted various innovative methods of delivering quality instruction through the use of varied applications like Google Classroom and Google Education to take the online class. These online classes or e-learning were implemented not only with the purpose of completing the course but also to constantly remain in touch with the student and provide much-needed guidance and assistance in learning during the COVID-19 pandemic [7].

Throughout the implementation of education, conventional classes offer an efficient avenue for delivering and catering to the transfer of knowledge. Henceforth, the institution tried to use digital media and online teaching methods to make the learning process more manageable, convenient, and accessible for the student during the COVID-19 pandemic [1]. With the e-learning method of teaching, online classes and digital modules started in the institutions teaching.

The researchers conducted a survey study among the students in the college to evaluate the effectiveness of online classes and the level of satisfaction of various students and compare the satisfaction and effectiveness of online learning and digital modular learning.

2. Conceptual Framework

The study works on the premise that experience in the new learning modality and perception of the students during the COVID-19 pandemic has a meaningful impact on their learning. As shown in **Figure 1**, the process involves an accurate appraisal of the effectiveness of the e-classes and evaluation of the level of learners' satisfaction with the system provided for their learning [6].

The assessment on the effectiveness of the e-classes is according to the ten different parameters established by the study of [1], where e-classes offer con-

venience for students to access information and materials for learning. E-classes can meet the students' individual learning needs and establish communication between the student and the teacher as e-learning builds skills and knowledge through recoded classes or instruction and promotes an increase in the level of interaction. Notably, e-learning also balances the practical and theoretical side of the learning experience and prepares the learners to be well-rounded professionals.

Furthermore, the study established the satisfaction parameters for learning online. Where e-learning must provide help to the learners and balance in their learning, E-learning must help mold the learners professionally with the resources and assistance provided for them during the period of learning [1].

This study included two groups, the groups taking online classes and those who opt for digital modules. Both groups were provided with learning materials for their subject and were allowed to join the online classes. The data were treated statistically and interpreted based on the results.

3. Statement of the Problem

This study surveyed the effectiveness and level of satisfaction of learners during the implementation of e-learning during the COVID-19 pandemic during the academic year 2020-2021. It answered the following problems:

1. What is the perception of the students on the severity of the pandemic?
2. What was the state of mind of the student during the lock down?
3. What is the effectiveness of the e-classes considering,

3.1. convenience;

3.2. meeting individual learning needs;

3.3. communication;

3.4. building skills and knowledge;

3.5. understanding through recorded classes;

3.6. level of interaction;

3.7. doubt session;

3.8. balance of practical and theoretical experience;

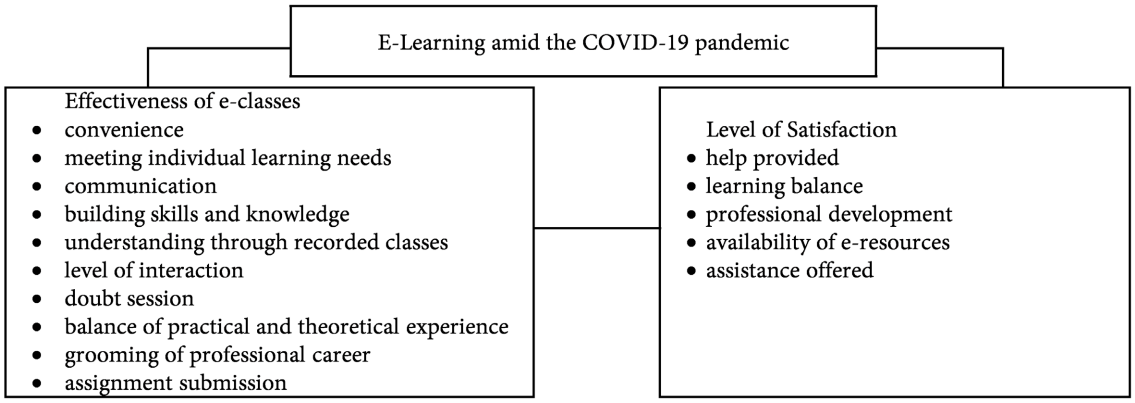

Figure 1. Conceptual framework of the study.

3.9. grooming of professional career; and

3.10. assignment submission?

4. What is the level of satisfaction of student considering;

4.1. help provided;

4.2. learning balance;

4.3. professional development;

4.4. availability of e-resources;

4.5. assistance offered?

5. Is there a significant difference on the satisfaction of students taking online classes and modular instruction?

4. Methodology

The locale of the study is the college department of San Isidro College at Malaybalay City, Bukidnon. The participants of the study are 412 undergraduate students of the institution. This study utilized the descriptive research design. The researchers collected data for the effectiveness and the level of satisfaction of the students for the e-learning modality learning. The researchers administered the survey questionnaire adopted from the study of [1] with a Cronbach alpha of 0.851 at the end of the semester to the college students who were enrolled for the academic year 2020-2021. The survey was carried out for two weeks after the online classes were concluded. Students were asked if they had experienced online learning or classes prior to the pandemic.

5. Results

A total of 412 undergraduate students of San Isidro College took part in the survey. Out of the 412 respondents, 388 responded had not taken online classes earlier, and 24 students had already experienced online classes. The mean of the age group was between 20.57 ± 2.58 years. There were about 36.4% male students and 63.6% female students who participated in the study.

Prior to presenting the questionnaire, students were asked about their perception of the severity of the pandemic as shown in **Figure 2**, 19.4% of the students rated it to be very severe, 36.4% of the students rated it to be severe, but 36.2% of the students did not recognize the severity of the pandemic. The perception of individuals to COVID-19 is linked to their experience in the community or exposure to social media. As many of the students observed, it is evident in the result that the pandemic is not as severe [8].

The student's state of mind was also asked, and as shown in **Figure 3**, 53% of the student felt anxious, 25% felt depressed, 12% felt no change, 8% felt relaxed, and 2% felt euphoria. According to [9], the news and posts on social media have a significant effect on the state of mind of individuals. It is evident in the result that many of the students felt anxious and depressed during the pandemic.

Table 1 displays the rank of the effectiveness of online learning compared to face-to-face learning according to the ten parameters.

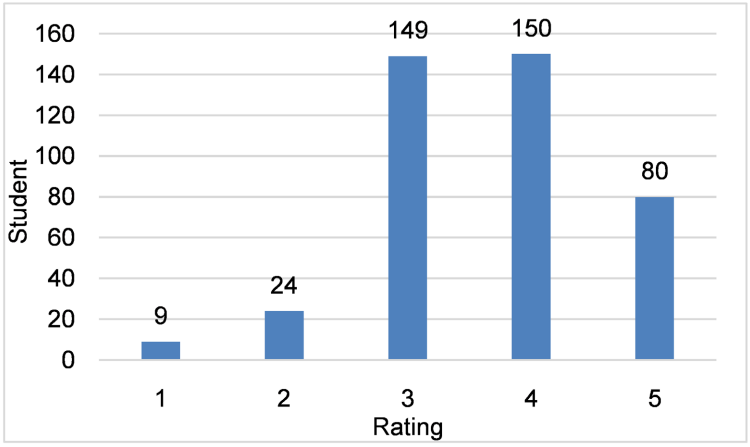

Figure 2. Severity of pandemic according to the students.

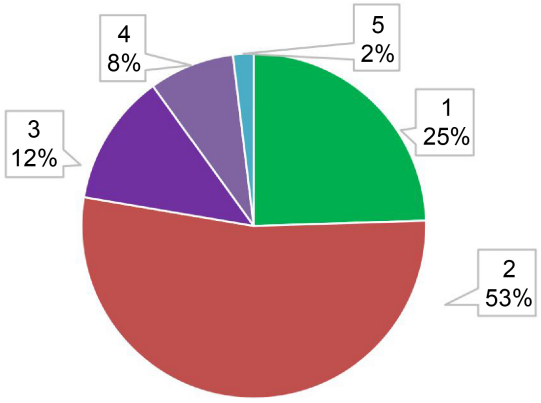

Figure 3. State of mind of the students.

Table 1. Rank of effectiveness of online learning compared to face-to-face learning.

Parameters	Percentage				
	5	4	3	2	1
1. Offering Convenience	8.98	34.71	41.50	11.65	3.16
2. Meeting Individual Learning Needs	7.52	34.22	36.65	15.53	6.07
3. Contributing to Effective Communication	8.25	32.28	37.38	15.53	6.55
4. Building Skills and Knowledge	9.95	32.52	33.25	16.26	8.01
5. Offering Better Understanding Through Recorded Class	7.28	31.55	35.92	16.50	8.74
6. Interaction Level	12.38	29.13	40.29	13.59	4.61
7. Doubt Session	8.74	36.17	45.15	7.28	2.67
8. Balancing of Practical and Theoretical Experience	9.71	39.61	33.45	14.08	3.16
9. Grooming of Professional Career	10.44	29.37	39.81	14.81	5.58
10. Assignment Submission	6.80	22.33	41.99	20.15	8.74

Legend: 1: Much less effective; 2: Somewhat less effective; 3: Equally Effective; 4: Somewhat more effective; 5: Much more effective.

Out of the ten parameters, in nine parameters, students rated that e-learning is equally effective on the parameters on offering convenience, meeting individual learning needs, contribution to effective communication, building skills and knowledge, better understanding through recorded classes, interaction level, doubt session, grooming of professional career, and on assignment submission. The respondents rated e-learning as somewhat more effective in balancing practical and theoretical experience than face-to-face learning.

Table 2 displays the mean and standard deviation of the effectiveness of online learning compared to face-to-face learning according to the ten parameters.

Out of the ten parameters, eight of the parameters is equally effective when comparing e-learning and face-to-face classes, namely the offer of convenience, the ability to meet individual learning needs, the contribution to effective communication, the capability to build skills and knowledge, the offer for a better understanding through recorded classes, the level of interaction, the balance of practical and theoretical experience, and the avenue to submit assignments. At the same time, two of the parameters claim that e-classes are somewhat less effective on the aspect of doubt sessions and the ability to groom a professional career. Overall, the e-classes are equally effective as face-to-face classes. The result is supported by the study of [10] and [11] that online classes and instruction are equally effective to face-to-face classes as the learning is still being stimulated though without the face-to-face interaction. Furthermore, the study of [1] supplements the result claiming the online learning is just as effective as face-to-face classes. The result goes against the study of [12] that states that online classes are less effective as compared to face-to-face classes, claiming that the method of teaching is less effective and thus the performance of the learners are also affected.

Table 2. Effectiveness of online learning compared to face-to-face learning.

Parameters	Mean	Standard Deviation
1. Offering Convenience	2.65	0.911
2. Meeting Individual Learning Needs	2.78	0.999
3. Contributing to Effective Communication	2.80	1.016
4. Building Skills and Knowledge	2.80	1.081
5. Offering Better Understanding Through Recorded Class	2.88	1.053
6. Interaction Level	2.69	1.001
7. Doubt Session	2.59	0.851
8. Balancing of Practical and Theoretical Experience	2.71	0.934
9. Grooming of Professional Career	2.56	1.013
10. Assignment Submission	3.02	1.024
Overall	2.77	0.713

Table 3 displays the level of satisfaction of the students concerning online classes according to the five parameters.

Unanimously, the students have a neutral stand in their satisfaction with online learning. The result is supported by the study of [13], claiming that the student's overall experience on online learning may have no impact on their satisfaction due to the lack of interaction but makes up for convenience.

Table 4 presents the mean and standard deviation of the student's satisfaction with the five parameters.

Out of the five parameters, four are rated as neutral satisfaction: the balance of practical and theoretical knowledge, the professional development strategy, the availability of e-resources, and online assistance. In comparison, many students are satisfied with the class material provided. Overall, the students have a neutral stand on their satisfaction with online learning. The result is supported by the study of [13] and [14], which states that the offered convenience lacks interaction and makes students doubtful of question their learning satisfaction.

Table 5 present that comparison of students taking online classes from students only using online learning module for their subjects.

Table 3. Satisfaction level of students with regard to online classes.

Parameters	Percentage				
	5	4	3	2	1
1. How helpful was the class material provided to you?	1.21	7.28	37.86	33.74	19.90
2. How satisfied are you with the balance of practical and theoretical knowledge provided by these classes?	0.73	9.95	49.51	32.52	7.28
3. There is a professional development strategy towards online training?	1.94	11.89	45.63	33.25	7.28
4. Availability of e-resources	1.46	11.65	46.12	30.83	9.95
5. Availability of assistance	2.91	13.59	46.60	30.34	6.55

Legend: 1: Much less effective; 2: Somewhat less effective; 3: Equally Effective; 4: Somewhat more effective; 5: Much more effective.

Table 4. Satisfaction parameter.

Parameters	Mean	Standard Deviation
1. How helpful was the class material provided to you?	3.64	0.922
2. How satisfied are you with the balance of practical and theoretical knowledge provided by these classes?	3.36	0.787
3. There is a professional development strategy towards online training?	3.32	0.848
4. Availability of e-resources	3.36	0.867
5. Availability of assistance	3.24	0.873
Overall	3.38	0.682

Table 5. Comparison of the satisfaction of the students.

Group	N	Mean	Standard Deviation	*t*	*p*
Online Learning	353	3.42	0.688	2.792	0.005
Modular Learning	59	3.16	0.604		

**p < 0.01.

As observed in Table 5, the t-value for the online learners is 2.792 and for the modular learners is 3.064, with a probability of 0.000 ($p < 0.01$), indicating a significant difference. The result implies that the online learners with a mean of 3.42, which indicates that the learners are satisfied and have higher satisfaction than the modular learners, which has a mean of 3.16 and indicates neutrality on their satisfaction. The result is supported by [15] [16] [17], stating that online learners are more satisfied with online learning as compared to modular learning because of the availability to interact with the teacher and ask for clarification or follow up instruction as compared to a pure modular instruction.

6. Summary

The study determined that the students viewed the pandemic as severe, and many felt anxious. The survey discovered that many students ranked equally effective on nine of the parameters and ranked the balance of practical and theoretical experience as somewhat more effective when comparing e-learning and face-to-face classes. Overall, the students rated 2.77, which indicates equal effectiveness between e-classes and traditional classes.

The survey also revealed that students have a neutral stand on their satisfaction with online learning and gave an overall rating of 3.38, which further establishes neutrality on their experience with online learning.

When comparing the satisfaction between online learning and modular instruction, it is discovered that there is a significant difference between the students' experience on online and modular learning. Furthermore, online learners are more satisfied with their experience as compared to learners experiencing modular instruction.

7. Conclusion

Although several factors affect the e-learning experience of the students, learners view e-learning as equally effective to face-to-face classes. Learners are neither satisfied nor dissatisfied with their online experience, and it revealed that learners are more satisfied with online instruction than modular instruction. Online learning is a difficult modality of learning for both students and teachers and may affect the overall.

Conflict of Interest

The authors declare no conflict of interest.

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