Discussion-Based Approaches: Factors That Affect University Students' Performance on Virtual Classroom Instruction

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ABSTRACT

This study examined the factors that affect the student's performance in virtual classroom instruction and the student's perception of virtual classroom instruction. The study used a descriptive research design to categorize the study variables, and it presents quantitative research that used internet surveys to collect data from respondents. The participants in the study were third-year BSED-English students enrolled in the second semester of the A.Y. 2020–2021 at the College of Teacher Education (CTE) of Mindoro State University, Philippines. 59 out of 90 student respondents participated in the survey in a span of three weeks, which covered 65% of the identified student respondents. The study used a researcher-made online survey questionnaire using Google forms with a close-ended statement. Results revealed that the support of the university and the support of instructors are great contributors to students' performance in virtual classroom instruction. Meanwhile, regarding students' perception of virtual classroom instruction, virtual classroom instruction does not meet students' needs and learning styles and equips students' knowledge, skills, and abilities, which affirms that students' needs and learning styles are met when learning is face-to-face. It is necessary to provide a user-friendly Learning Management System (LMS) from a pedagogical perspective. Teachers must detect student needs and scaffold learning by closely observing student involvement and participation patterns to ensure they meet students' needs and learning styles and equip their knowledge, skills, and abilities.

INTRODUCTION

In education, the experiences of both educators and learners on changes such as transformation and innovation are common. Adapting new teaching strategies in the education system due to the current pandemic is not an exception. This crisis has exposed the many inadequacies and inequities in the education systems – from access to the broadband and computers needed for online education and the supportive environments needed to focus on learning up to the misalignment between resources and needs (Thomas & Brown, 2011). The lockdowns in response to COVID-19 have interrupted conventional schooling, with nationwide school closures in most countries. While the education system has worked hard to maintain learning continuity during this time, children and students have had to rely more on their own resources to learn remotely via the Internet, television, or radio. Teachers had to adjust to new pedagogical concepts and styles of delivery that they may not have been educated for. Learners from the most disadvantaged groups who lack access to digital learning tools or the resilience and engagement to learn independently are at risk of falling behind (Green *et al.*, 2020).

Globally, over 1.2 billion students are out of the classroom due to the pandemic. As an outcome, the education system has transformed radically, with the distinctive augmentation of virtual classroom instruction, in which teaching is undertaken distantly and using digital platforms (Collie *et al.*, 2018). Virtual classroom instruction has

been pushed further and deeper to address the challenges of learning stability in the middle of school closure during this tough time due to the COVID-19 pandemic. Video-conferencing is typically utilized to do face-to-face instruction. Access and usage of video-conferencing tools and learning management systems have increased immensely as teaching and learning occur within the virtual corners of their online classrooms.

Today, virtual classroom instruction has been a helpful means of unbroken practical learning. Some schools and institutions have done it productively and effectively, but some are challenged with major issues and problems by students, parents, and instructors (Heggart, 2015). To simplify it, it looks like the new normal is about virtual classroom instruction and having digital platforms and tools to upkeep and support learning. However, the value of virtual classroom instruction depends not only on technical success but also on matters that involve humans' pedagogical or psychological state. Virtual classroom instruction is customarily regarded as more self-directed and teacher independent than traditional teaching, but in fact, the teacher is eventually responsible for providing the elements of learning in all teaching situations. García and Weiss (2020) revealed that students learn effectively if they have consistent access to the internet and computers and if teachers have received targeted training and support for online instruction. Because these essential prerequisites for efficacy have been mostly unmet for many, distant schooling has hampered teaching and

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learning during the pandemic. No doubt being embarked into these ambiguous times because of COVID-19 has been expressly tough for teachers and students who now need to transport their classrooms from their safe school settings to their homes.Virtual classroom instruction requires the student and teacher to be connected to the internet. While in most cases, the learning will be asynchronous, there is a large piece of time that will still require the student and teacher to be connected to the internet to be present in a class (Fullan, 2007). One of the main worries about moving to online learning is that one cannot imitate the involvement and experience of being in the traditional classroom. Most teachers were trained and competent to teach in a traditional classroom and not through online learning platforms. Based on the survey on Teacher Readiness for Distance Education piloted by the Department of Education in April 2020, out of 689,329 teachers surveyed, only 63,416 or 9% of the teachers have undertaken training on Distance Learning (Fidalgo, 2020). This is a hole that must be covered to guarantee that the quality of education is sustained. Meanwhile, during the quarantine period in the Philippines, education spokespersons have proposed using online platforms for the school year 2020-2021 to continue the schooling of millions of Filipino students. The Philippines, on the other hand, cannot support online schooling for most of its students, and the challenge is whether an online class will be effective for the majority of the country.

Comer *et al.* (2015) affirmed that it is generally accepted that undergraduate students would excel in online courses because most of them are digital natives. However, variables other than technology also impact students' capacity to function as online learners. According to self-reported data, most students think they are well-suited for online learning. Additionally, elements at the course level impact how well students learn online. Particularly, students reported more favorable impressions of their online learning and various parts of their curriculum in qualitative (vs. quantitative) courses and beginning (vs. advanced) classes.

Yeboah and Smith (2016) demonstrated that participants' academic success was unrelated to their level of contentment or use of social media. However, there was a connection between the usage of technology, the number of online courses, study plans, and academic success. Flexibility and time convenience, self-confidence, a lack of assistance, self-regulated learning abilities, language and linguistic differences, and lack of help were the categories that emerged from the open-ended questions. The authors concluded that a variety of elements, including cultural, linguistic, interpersonal, and effective abilities, aided minority students' academic performance in an online learning environment. This study reaffirms the value of creating a multicultural environment in an online course and offers the best pedagogical strategies for instructing minority students online. Liu and Cavanaugh (2012), on the other hand, examined how final student grades in mathematics courses within a K–12 online learning environment are affected by teacher comments, student demographic data, and LMS usage. The findings indicated that these variables affect students' final algebra course grades. The implications for teaching are covered in the discussion of the results.

There is insufficient empirical research looking at how students' opinions of the virtual classroom experience and the elements that influence their performance in virtual classroom education. Few studies have looked at how these factors may affect students' perceptions of the virtual classroom experience or how those perceptions may in turn affect their academic performance. Some studies have looked at factors like technology use, teacher support, and student engagement in virtual classrooms. Hence, this study was conducted to address the gap in the factors that possibly affect the performance of undergraduate students in a university within virtual classroom instruction. Though there were some studies undertaken that assess the student's performance in online courses (2015), academic success in relation to their level of contentment or use of social media Yeboah and Smith (2016), as well as how students' grades within an online learning environment are affected by teacher comments, student demographic data, and LMS usage (Liu & Cavanaugh, 2012), there was no published study that determines the factors that affect the performance of university undergraduate students in virtual classroom instruction as well as their perception towards virtual classroom instruction in the context of the CTE at Mindoro State University. This could fill a research vacuum and guide measures to enhance virtual classroom education and boost student achievements.

Moreover, Oriental Mindoro is a province of Region IV-B, Philippines, that is highly impacted by the recent crisis brought on by the Covid-19 pandemic. Relative to this, several schools in Oriental Mindoro have adopted virtual classroom instruction for the academic year 2020-2021 as the schools followed the safety protocols of the government. As instructors in the sole state university in Oriental Mindoro, Mindoro State University, the researchers were driven to determine the number of factors and circumstances that shape students' learning and development through virtual classroom instruction. Thus, this study assessed the student's performance and perception of virtual classroom instruction. Specifically, it examined the factors that affect the student's performance in virtual classroom instruction and the student's perception of virtual classroom instruction.

LITERATURE REVIEW
The use of virtual classrooms, commonly referred to as online learning or e-learning, has grown in popularity recently as a result of technological developments and modifications to the manner that education is imparted. Studies on the effectiveness of virtual classroom instruction have been conducted, and some have found that it can be just as effective as traditional classroom instruction (Liu, 2013; Means *et al.*, 2013; Watson & Kalmon, 2015). Some,

however, contend that not all students will benefit equally from virtual classroom education, especially those who have difficulty managing their own learning (Khalil & Ebner, 2014). Notwithstanding these conflicting results, it is obvious that online learning has grown to be a significant and popular method of delivering education, since many institutions now provide online courses and degree programs.

The popularity of virtual classroom training has grown over the past few years as a result of technological improvements and the demand for more adaptable and accessible educational delivery methods. Virtual classroom instruction has been the subject of numerous studies examining its advantages and disadvantages. Some of these studies have found that it can enhance student engagement, motivation, and academic performance (Jaggars & Xu, 2016; Kirschner & van Merrinboer, 2013; Richardson & Swan, 2003). Some, however, have asserted that learning in a virtual classroom may cause students to feel alone and disconnected and may not be as successful as training in a traditional classroom for specific subjects or student populations (Allen & Seaman, 2014; Clark & Mayer, 2011; Zimmerman, 2013). Despite these conflicting results, virtual classroom instruction is expected to remain a crucial teaching method.

In recent years, the use of virtual classrooms has grown in popularity, and numerous studies have looked into how it affects both student views and performance. According to research, kids who participate in virtual classroom education may outperform their counterparts in conventional classroom settings (Lage, Platt, & Treglia, 2000; Means *et al.*, 2013; Yoon, 2017). Yet, some studies have revealed that not all students may benefit equally from virtual classroom education, particularly those who cannot self-regulate their learning (Khalil & Ebner, 2014). Studies have looked into students' impressions of virtual classroom instruction in addition to their academic performance, and several have found that in general, students have favorable attitudes of this method of delivering education (Kim & Frick, 2011; Moisey, Neuhauser, & Hornik, 2008). Yet, some research has revealed that pupils may worry about social exclusion and a lack of engagement with their teachers and classmates in online classes (Allen & Seaman, 2017; Horzum, 2018).

MATERIALS AND METHODS
Research Design and Sampling
The study used descriptive research design to categorize the study variables, and it presents quantitative research that used internet surveys to collect data from respondents. The participants in the study were third-year Bachelor of Secondary Education (BSED) students with a specialization in English enrolled in the second semester of the academic year (AY) 2020–2021 at the College of Teacher Education (CTE) of Mindoro State University–Calapan City Campus. 90 BSED students with specialization in English were purposively selected as respondents and represented the sample. To quickly collect the information needed for

the study, they were contacted via Facebook Messenger and completed a Google Forms survey.

Research Instrument
After carefully examining the literature review related to factors that affect the student's performance in virtual classroom instruction and the level of student performance during the pandemic, the study used a researcher-made online survey questionnaire using Google Forms with a close-ended 4-point Likert scale statements: Strongly Disagree (1), Disagree (2), Agree (3) and Strongly Agree (4). The questionnaire's statements were divided into two (2) main domains as follows:

  - The first part (8 items) determined the factors that affect the student's performance in virtual classroom instruction; and

  - The second part (8 items) dealt with students' perception of their performance during the pandemic.

Validity and Reliability
Reliability was evaluated using the test-retest procedures. The reliability of the study was determined after administration to ten (10) students who were not included in the study (from Bachelor of Secondary Education with specialization in Mathematics), and the instrument was found reliable with Cronbach alpha's reliability of 0.800 ($p<0.05$). The Cronbach's alpha coefficients of each domain were above 0.8, which was considered good and acceptable. The online survey questionnaire was presented to three experts from the College of Teacher Education who have already completed their doctorate degree through electronic mail in order to ensure its validity.

Data Collection
The data were gathered from 90 third-year BSED-English students who were enrolled in the second semester of the academic year (AY) 2020-2021. Google Forms was used to build an online survey form, and participants were sent a link to a private Facebook Messenger conversation room. With regard to some obstacles or issues that affected the number of responses from the students, as expected from online surveys, only 59 participated in the survey in a span of three weeks and were included in the study, which covered 65% of the identified student respondents. They were informed three weeks prior to the administration of the online survey.

Ethical Consideration
The respondents were briefed and given important information on academic writing prior to the study's conduct. The respondents voluntarily agreed to participate in the study through informed consent. The information collected was handled with secrecy and anonymity. All information was held and treated with the utmost confidentiality in accordance with RA 10173, also known as Data Privacy Act, to ensure anonymity and confidentiality and avoid the potential for harm.

RESULTS AND DISCUSSION

Factors that Affect the Students' Performance in Virtual Classroom Instruction

The student respondents perceived that in virtual classroom instruction, the university and instructor's support towards students (M=3.59) strongly affected the student's performance during the COVID-19 pandemic. The findings revealed that the support of the institution and the support of instructors are great contributors to students' performance in virtual classroom instruction. This is parallel with the findings of the study of Lee *et al.* (2011) which found that university assistance is critical, including providing guidance and counseling services for university students. These include online learning orientations, administrative aid, and participant social engagement. Most institutions began to offer virtual classroom teaching during the COVID-19 epidemic. According to Ward *et al.* (2010), most university administrators said that online learning was crucial for ongoing learning activities and saw it as part of the overall organizational plan. Similarly, instructors significantly impact the quality of e-learning (Abbasi *et al.*, 2020). They are the driving force behind quality education delivery. They are the motivators, guides, and mentors who steer pupils through all scenarios and assist them in resolving problems and concerns. They serve as role models and encourage pupils to look at life from many perspectives. They also help to reduce academic dishonesty (Chirikov *et al.*, 2020), which improves students' academic performance.

The result also revealed that in virtual classroom instruction, the Learning Management System (LMS) (M=3.44) design affects the students' performance during the COVID-19 pandemic. This is in accordance with the results of the study of Ahmad *et al.* (2018), which found that the LMS should introduce course content that is designed according to students' competence and level of understanding and is appropriate in terms of time and space to promote and support the self-study process. Structure, course design interface, testing and assessment methodologies, and exchange forums between lecturers and learners are all part of the Learning Management System. An LMS design will encourage students' participation in online classes (2020).

On the other hand, the student respondents perceived that in virtual classroom instruction, the professional competence of teachers (M=2.95) and the time rendered per online class session (M=2.97) slightly affected the student's performance during the COVID-19 pandemic. The findings contradict the findings of Alrefaie's (2020) study, which found that pedagogical methods, professional competence, science and technology application level, ability to construct and merge different thoughts, and practices in designing online learning content in higher education help students achieve improved learning outcomes.

Table 1: Factors that Affect the Students' Performance in Virtual Classroom Instruction

Item Number	Through virtual classroom instruction, the following affects the student's performance:	Mean	Description
1	pedagogical methods of teachers	3.29	Agree
2	professional competence of teachers	2.95	Agree
3	structure and content of chapters of e-learning materials	3.20	Agree
4	design of a Learning Management System (LMS)	3.44	Agree
5	Internet connection	3.15	Agree
6	number of students in an online class	3.10	Agree
7	time rendered per online class session	2.97	Agree
8	university and instructor support toward students	3.59	Strongly Agree
	Overall Mean	**3.21**	**Agree**

Students' Perception of Virtual Classroom Instruction

The student respondents perceived that virtual classroom instruction provides comfort to students (M=3.58), which connotes that online learning mode learning makes them feel comfortable because they are not bound to physical class sessions and all lectures and needed materials are provided via online platforms, so students easily access them from the comfort of their home. This is in line with the results of Alipour's (2020) study, which revealed that many other academic publications had corroborated the beneficial influence of virtual classroom instruction on academic success. Furthermore, the utilization of virtual classroom instruction increases student engagement to stay engaged in learning, so increasing their role as learners in their education. However, this opposes the findings of Harefa and Sihombing's (2011) study, which found that students are less comfortable with online learning and that the feeling of difficulty implies dissatisfaction.

The result also revealed that student respondents perceived that virtual classroom instruction is more convenient than face-to-face learning (M=3.20) and enthused students to learn more (M=3.15). Results showed that students are stimulated to learn more because it is more convenient than face-to-face learning. This is similar to the findings of Means *et al.* (2009), who found that in 100% of online classes, students fared somewhat better than in face-to-face sessions but significantly better in online courses. The benefits of virtual classroom instruction are

combined with technology-based learning in the virtual classroom (Melton *et al.*, 2010). This, however, contradicts the conclusions of Lee and Im's (2014) study, which found that determining which instructional approaches and learning settings to use was one of the most critical difficulties impacting the quality of education in higher education institutions.

On the other hand, the student respondents perceived that virtual classroom instruction does not meet students' needs and learning styles (M=2.12) and equip students' knowledge, skills, and abilities (M=2.25), which affirmed that students' needs and learning styles are met when

learning is face-to-face. Likewise, the results revealed that students could only totally grasp proper knowledge, skills, and abilities when classes are conducted face-to-face. The findings support Harefa and Sihombing's (2021) assumption that face-to-face learning is more enjoyable for students. Face-to-face learning allows students to get direct answers to their questions concerning the content being studied. Similarly, Dibner (2020) and Lan and Hew (2020) found that student involvement in virtual classroom instruction is frequently lower than in face-to-face instruction.

Table 2: Students' Perception of Virtual Classroom Instruction

Item Number	The following are students' perceptions of virtual classroom instruction	Mean	Description
1	improve students' performance	3.12	Agree
2	more convenient than face-to-face learning	3.20	Agree
3	enthuse students to learn more	3.15	Agree
4	encourage more class interaction	2.59	Agree
5	provides comfort to students	3.58	Strongly Agree
6	equip students' knowledge, skills, and abilities	2.25	Disagree
7	provide students with a supportive learning environment	3.07	Agree
8	Meet students' needs and learning styles	2.12	Disagree
	Overall Mean	**2.89**	**Agree**

CONCLUSION

In terms of the factors that affect the student's performance in virtual classroom instruction, the support of the institution, along with the support of instructors, are great contributors to the performance of students in virtual classroom instruction. The results also revealed that in virtual classroom instruction, the design of the Learning Management System (LMS) affects the students' performance during the COVID-19 pandemic. On the other hand, the professional competence of teachers and the time rendered per online class session slightly affect the student's performance during the COVID-19 pandemic. Meanwhile, in terms of students' perception of virtual classroom instruction, student respondents agreed that virtual classroom instruction provides comfort to students, is more convenient than face-to-face learning, and enthuses students to learn more. However, virtual classroom instruction does not meet students' needs and learning styles and equips students' knowledge, skills, and abilities, affirming that students' needs and learning styles are met when face-to-face learning.

RECOMMENDATION

It is necessary to provide a user-friendly Learning Management System (LMS) from a pedagogical perspective. Instructional designers and educators may create effective LMS with the help of research on interface. design, learner involvement patterns, and cognitive load in virtual classroom instruction. Students must be ready for the social roles, pedagogical practices, technology, and learning management systems needed for online

learning. Teachers must detect student needs and scaffold learning by closely observing student involvement and participation patterns to ensure they meet students' needs and learning styles and equip their knowledge, skills, and abilities.

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