

Perceived Effects of Online Learning on the Academic Performance of Senior High School Students

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Abstract

This study aims to determine the perceived effects of online learning on the academic performance of senior high school students at Notre Dame of Midsayap College in the school year 2021-2022. The descriptive-correlational research design was employed in this study. A quota sampling with an equal allocation was used in choosing the respondents. The findings showed that the male and female respondents are equally represented, mostly 18 years old belonging to grades 11 and 12. In terms of the perceived effects of online learning, respondent neither agree nor disagree that online helps them comprehend the course materials, helps improve their academic performance and increases their academic output. Male and female respondents does not differ in their perception of online learning. The top challenges they experienced are lack of fieldwork and laboratory access, unavailability of gadgets and distractions by other websites when using smartphones or laptop. Finally, results revealed that respondent neither agreed nor disagreed on the perceived effects of online learning on the academic performance of senior high school students.

Keywords: Online Learning, Academic Performance, Senior High School, Philippines

Introduction

"We need to bring learning to people instead of people to learning." – Elliot Massie.

The Internet has made online learning viable. Many researchers and educators, particularly in higher education, are interested in using it to enhance and increase student learning outcomes while overcoming resource constraints. Furthermore, the demand for online learning has grown among students from all walks of life. (Kim & Bonk, 2006). On a global scale, UNICEF (2020) estimated that school and university closures affect more than 1.5 billion students of all ages. Shutdowns have disproportionately affected youth. Educational systems around the world were once again challenged to provide new methods to immediately sustain education efforts, but this does not address delivering solutions to the challenges of each student (UNESCO, 2020).

Moreover, the first COVID-19 epidemic in Vietnam occurred in late January 2020, and the government responded quickly by closing all educational systems. Schools and universities were asked to switch to an online teaching approach (Pollack et al., 2020). Students in Vietnam were using e-learning platforms to learn English or soft skill courses prior to COVID-19. The e-learning model had been associated with those courses in Vietnam for over a decade, but learning regular courses at school or university is new

in Vietnam. Online learning has been recommended for many years in Vietnam, but it has lacked enthusiasm among universities, scholars, and students (Vietnam Economic Times, 2018).

According to Alvarez (2020), after President Rodrigo Duterte stated "no vaccine, no face-to-face lessons" in the Philippines, the Commission on Higher Education (CHED) issued directions to colleges to begin planning for online learning. Universities are obliged to close for the foreseeable future. Even more complicated is that not every student can provide and adapt to the quick changes in technology in today's digital age, especially in developing nations like the Philippines, where challenges already plagued education before the epidemic. Remote learning exposes a digital divide among Filipino students (Santos, 2020). This current state of remote learning can worsen existing disparities and create barriers to online learning. According to a nationwide cross-sectional study, thirty-two percent (32%) and twenty-two percent (22%) of 3, 670 Filipino medical students polled have trouble transitioning to new learning techniques and do not have dependable internet access, respectively (Baticulon et al., 2020).

The restrictions and community quarantine imposed on many areas, particularly in the Midsayap, have left students little choice but to attend online learning. The Notre Dame of Midsayap College (NDMC) has implemented online learning to continue education. The NDMC used an online learning platform that

offered a centralized synchronous and asynchronous system portal. It has been observed or expressed by students having poor connections, low scores, and lack of interaction. Students find themselves not interested in the topics given by their teachers. It has been a difficult situation for the students in achieving academic excellence. Adapting to the new learning environment would cause many confusions, apprehensions, and other factors that would affect their academic success expectations.

Research Questions

This study aimed to determine the perceived effects of online learning on the academic performance of senior high school students of Notre Dame of Midsayap College in the School Year 2021-2022. Specifically, the study sought to answer the following questions:

1. What is the profile of the respondents when grouped according to age, sex, and grade level?
2. What are the perceived effects of online learning on the academic performance of senior high school students?
3. Is there a significant difference in the respondents' perception of online learning when grouped according to the selected profile?
4. What are the problems or challenges met by the respondents regarding online learning?

Literature Review

Online Learning

Online learning appeals to diverse populations of students with ranging academic needs that traditional education classes are deficient or incapable of meeting. The demand for online courses is derived from a push “to provide quality education to all students, regardless of location and time” (Chaney, 2010). In addition, students in online learning are expected to be independent learners because direct interaction between teachers and students is not possible, so they must be proactive in locating materials that they find difficult to gain access to the source of materials via the internet. They believe it is difficult for them to understand the material without the teacher's explanation. In this situation, teachers should continue encouraging their students to embrace online learning, as mentioned by Mualim (2019). Therefore, in study of Bacsek et al. (2021) online learning was found to be less successful than face-to-face learning. When compared to regular classes, students reported being less active in online classes. However, according to

some respondents, enjoyed e-learning and comfortable settings were the top advantages of online learning.

In Mukhtar et al. (2020) study, online learning advantages included remote learning, comfort, and accessibility, but online learning was limited to inefficiency and difficulty in supervising students. When conducting online teaching, teachers should try to monitor students and improve their learning efficiency. Online teachers could also notice various influencing factors in online learning. In the online learning during the pandemic, undergraduates' anxiety was negatively related to foreign language enjoyment. Their coping behaviors, the negative and positive emotions were closely related and coexisted in online learning during the pandemic. Online resources and retrospective and general enjoyment greatly influenced their coping behaviors and stressors (Maican & Cocorada, 2021).

Furthermore, the ability to use a computer connected to a network offers the possibility of learning from anywhere, anytime, in any rhythm, with any means. Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, blended learning, and m-learning, for example) can use a computer connected to a network, which offers the possibility of learning from anywhere and anytime. Online learning is a technology that allows the teaching-learning process to become more student-centered, inventive, and adaptable. Learning experiences in synchronous or asynchronous environments using various devices such as mobile phones and laptops with an internet connection is defined by online learning. Students can learn and communicate with professors and other students from anywhere (independent) in these contexts (Singh & Thurman, 2019).

Students attend live lectures, there are real-time interactions between educators and learners, and there is the prospect of quick feedback in the asynchronous learning environment. However, asynchronous learning settings are not well designed. Learning content is not available in live lectures or courses in such a learning environment, instead, it is available through various learning systems and forums. In such a setting, instant feedback and fast response are impossible. Synchronous learning can provide many social engagement opportunities (Littlefield, 2018).

Some concentrated on students' total online learning experience during the COVID-19 pandemic. For example, a quantitative descriptive technique was used to investigate students' experiences during the

COVID-19 epidemic. According to their findings, students welcomed the usage of online learning during the epidemic. On the other hand, half of them thought that traditional classroom instruction was more effective than using an online learning platform. In terms of methodology, the researchers concede that the quantitative character of their study prevents a more in-depth analysis of the results (Singh et al., 2020).

According to Khali et al. (2020), unlike the previous study, they conducted a qualitative investigation of the efficacy of synchronized online learning in Saudi Arabian medical school. The findings revealed that students usually think of synchronous online learning favorably, especially in terms of time management and efficacy. They did, however, mention technological (internet connectivity and tool utility), methodological (content delivery), and behavioral (personality) difficulties. Despite efforts to implement virtual laboratories, their findings indicated that the online learning environment fails to meet the needs of courses that require hands-on experience. A separate study used a narrative inquiry approach to analyze students' online learning experiences throughout the epidemic (Adarkwah, 2021).

Academic Performance

The student's academic performance level is likely to drop for the classes held for both year-end examination and internal examination due to reduced contact hours for learners and lack of consultation with teachers when facing difficulties in learning/understanding (Sintema, 2020). In the study of Bhagat (2013), academic performance is widely assessed through exams or ongoing assessments. However, there is no consensus on evaluating it or whether components of procedural knowledge, such as skills, are more significant than declarative information. The impact of online learning on academic performance in university education online learning is regarded as an essential element in improving academic success. Moreover, flipped learning is an effective strategy for both self-efficacy and academic performance. Academic success is a result of online learning (Carmichael & Steyn, 2018).

Additionally, in the study of Uok and Langat (2015) discovered a positive correlation. The relationship between these factors and academic performance is unclear. This implies that if a student maintains a positive attitude toward these factors, his or her academic performance will improve, all other things being equal. In addition, online learning platforms used to improve students' academic achievements and

satisfaction, which could assist decision makers at universities and higher education and colleges in planning, evaluating, and implementing online learning platforms in their institutions (Abuhassna et al., 2020).

According to Tomaevic & Keric (2015), there is a favorable association between the proportion of the course implemented in the Moodle e-learning platform and students' performance and satisfaction. Pupils' self-efficacy with computers or the internet and their passion for learning had a clear, positive impact on their online discussion score and overall satisfaction with the course. Increased student contact and orientation to an online learning environment have been essential components in improving student happiness and enhancing a feeling of community in online learning (Brown, Schroeder & Eaton, 2016; Boz & Adnan, 2017).

Effects of Online Learning

During the coronavirus period, the perception of students toward online education became an important question to be answered. Secondary data were collected using a questionnaire based on Likert Style, and the results revealed that a minor majority of the responses were satisfied in terms of experiencing online education, which is considered acceptable because it was the first time. Despite the fact that 40% of them were pleased with online education, more than half of the respondents received less than they expected (Budur & Taylan, 2020).

Online learning has become a standard teaching approach as technology usage in education has grown. It is how successful online learning for undergraduate medical education. This study aims to sense that data in e-learning may help undergraduate medical students learn better than traditional learning. During the years 2000-2017, 10 terms in their Boolean combinations were searched for ideas on a five data basis and significant publications in medical education. A random-effects model was used to synthesize the extracted articles on undergraduate knowledge and skill outcomes from the meta-analysis. 16 out of 3700 published articles were identified (Pie, Leisi, & Wu, 2019). Additionally, since the outbreak of COVID-19, there have been many studies committed to online learning. Most studies have reported positive online learning effectiveness during the COVID-19 pandemic. Online, indoor, and desk-based learning could benefit secondary students and enable them to learn effectively and continually during the COVID-19 pandemic lockdown (Van et al., 2020).

Furthermore, online learning via the Community of Inquiry framework (CoI) could significantly increase students' engagement in learning and improve learning achievement and team instruction during the COVID-19 pandemic (Tan et al., 2020). Medical students were ready to learn through the online and synchronized model, indicating the future model of medical education, whose effectiveness might be ensured based on a rigorous framework (Khalil et al., 2020). In addition, Hidalgo, Escudero, Villacis, & Varel (2021) made evident that online learning affects academic achievement in English and Foreign Language students during the COVID-19 pandemic, which was confirmed after analyzing four main areas: pedagogical practices and assessment, learning outcomes, affective factors and students' perceptions about the advantages and disadvantages of online learning in a recent review study, identified factors affecting students' academic performance in distance learning and blended learning. Online learning could bring about negative results regarding health and students' attitudes. Children could catch eye strain due to frequent engagement in online learning during the COVID-19 time.

Perceived Strengths of Online Learning

In an online course, students have opportunities to develop relationships with one another and with the instructor through dialogue and collaborative activities. In the words of "In the online environment, collaboration can be seen as the Cornerstone of the educational experience. Everything that students engage in online, from Participation on a discussion board to work in small groups, can be viewed as collaborative (Palloff & Pratt, 2010).

In addition, Friedman (2011), online learning will likely become increasingly reliant on such tools to help boost student interest and satisfaction in an online course, making it even easier to cater to the third level in Maslow's hierarchy. Furthermore, the use of online learning in education has grown dramatically in the last decade, with numerous benefits (Allen & Seaman, 2017). Many students are taking their courses online, teachers have been asked to create online courses to increase learning and teaching effectiveness (Evans, 2014).

According to Panigrahi et al. (2018), numerous studies have shown online learning to boost student involvement, improve conversation quality, and stimulate online connections. The discussion forum could help students and increase their learning by resolving challenges. Mobile technology such as apps

and PCs could make it easier to access an online learning platform and improve the effectiveness of mobile learning. However, Star-Glass (2013) stated that in an online learning framework, collaboration and virtual community could be developed. Online learning, aided by information technologies such as laptops, tablets, iPads, and mobile phones, has been widely employed and well welcomed in higher educational institutions. Learners could benefit from online learning in various ways, including diverting students' attention to critical information and allowing them to participate in collaborative learning activities (Alwi et al., 2012) The formation of virtual communities may improve the outcomes of online learning (Panigrahi et al., 2018).

The most enticing option for online learning has been time flexibility, which allows online learners to control the duration, pace, and synchrony of their learning activities. Recently, differentiated time flexibility into two constructs: instructional time and learner time, and emphasized the importance of research that address learner time features such as time-on-task quality. The other key of good online learning is authentic projects (Romero and Barberà 2011).

Perceived Weaknesses of Online Learning

Burns (2011) identified three barriers to implementing web-based distance education in teacher education: a lack of high-speed internet and long-lasting technology; a lack of trainer and student skills; and lack of support services. Access is a common issue among teachers and students. Philippines is still one of the country in Asia that has the slowest internet connection. Wi-Fi connectivity is another issue, as the nation has seen on television or read in news reports of teachers and students attempting to capture wireless signals to access the internet from mountain tops or hilltops (Averia, & Adonis, 2020). In addition, system characteristics, internet experience, and computer self-efficacy are the main barriers to successful e-learning system adoption in Pakistan (Kanwal & Rehman, 2017). In Kenya, a similar study identified three major e-learning challenges: insufficient ICT infrastructure, a lack of technical skills, and financial constraints. Despite the advantages of online distance learning, it is not without its drawbacks by teachers and students (Tarus et al. 2015).

Online learning has become the norm, with a large number of students taking advantage of it. The essence of online learning is the ongoing development of students' cognitive levels, and in order to acquire effective learning, students must actively participate in

learning. However, due to a lack of communication between teachers and students, students who participate in online learning perform poorly, and their persistence and efficiency are also low. This paper summarizes relevant research on student engagement in online learning, introducing two concepts: student engagement and online student engagement, statistically analyzing measurement methods of student engagement used in related research, and finally proposing the inadequacy of existing research (Hu & Li, 2017).

Gender Affecting in Online Learning

Several studies have investigated the effect of learners' demographic backgrounds on online learning outcomes (Gašević et al., 2016). Numerous studies have explored the impact of gender and educational levels on online learning outcomes (Boyte-Eckis et al., 2018). According to Huang & Fang (2013), educational levels could considerably predict online learning outcomes, while the effect of gender on online learning outcomes is controversial. Females could achieve higher learning outcomes than males because they were more persistent and committed. Females had more robust self-regulation than males, which also led to their significantly more positive online learning outcomes than males, as mentioned by (Alghamdi et al., 2020).

However, according to Harvey et al. (2017), no significant gender differences were revealed in learning outcomes because males were more stable in attitudes while females performed well in engagement. There were also no significant gender differences in the learning satisfaction of online millennial learners. He mention that there are no significant gender differences in learning outcomes based on learning styles discovered. Ismail et al. (2018) pointed out that students' characteristics, including gender, age, status, and ethnicity are among the most significant factors influencing academic performance. Gender influences on online learning outcomes are debatable. Females outperformed males in learning random effects because they were more persistent and committed. Females had higher levels of self-regulation than males, which resulted in significantly better online learning outcomes, as mentioned (Alghamdi, 2020). Additionally, significant gender differences in learning outcomes were discovered because males were more stable in attitudes, and females performed well in engagement (Nistor, 2013).

Problems and Challenges on Online Learning

In the study of Bilgic and Tüzon (2015), distance education challenges individuals who pursue distance education to have access to educational environments that are not dependent on their location with the help of evolving web-based platforms and technologies in both time and space. Claim to Davis, Gough, and Taylor (2019), student barriers to online learning could include expectation misinterpretation, time management, and interpersonal communication skills; the identification of expectations, providing feedback, and interpersonal relationships may all be barriers to instructors.

According to Aung and Khaing (2015), teachers felt that the decrease in class size was due to a lack of internet connection, as millions of students and parents struggled to learn new learning platforms driven by the new coronavirus epidemic. These problems range significantly from one country to the next, owing to cultural differences, background, and preparation. The main challenges of e-learning system adoption in developing countries, for example, were a lack of ICT knowledge, poor network infrastructure, and a lack of content development.

At the start of a semester, students may enroll in online or in-person courses. We present to you a brief discussion of the literature on how the transition to virtual instruction in the middle of the semester might affect students and provide unique challenges for students, based on research that has looked into various factors obstructing or encouraging online education success. Several variables causes students' academic struggles in online education. Online in comparison to in-person classes, online learning necessitates higher autonomy among students. Intellectually challenged pupils or students enrolled in non-traditional courses may find it difficult (Dabbagh et al., 2019). They make it more difficult for students to engage with and learn from classmates and instructors (Friesen & Kuskis, 2013; Xu & Jaggars, 2014). Researchers and educators have devised many techniques to generate a more profound sense of connection and involvement in online courses in response to these problems. Project Compass, for example, increased the number of synchronous class sessions and encouraged more interpersonal interaction between instructors and students (Edmunds et al., 2019).

According to Cung, Xu, and Eichorn (2018), study the impact of giving the students in-person office hours and more regular digital communication with instructors and find that these improvements in student interaction result in improved performance. Students

who started the semester in in-person classes may have been negatively chosen for the autonomy necessary in online courses due to the abrupt move to virtual instruction during the COVID-19 epidemic. Meanwhile, teachers who were forced to switch to online education did not have enough time to develop ways to boost students' sense of closeness and interaction with instructors and peers. Both variables may have led to students who began the semester in the person having poorer academic outcomes than those who began the semester online.

The study's findings highlighted that online learning cannot produce desired results in underdeveloped countries such as Pakistan, where vast majority of students were unable to access the internet due to technical and financial issues. Among the other issues raised by higher education students were the lack of face-to-face interaction with the instructor, response time, and the absence of traditional classroom socialization (Adnan & Anwar, 2020). E-learning usage and adoption among users are problematic for many universities, both in developed and developing countries. However, in developed countries, the willingness of their students to accept and use the e-learning system is likely to be less of a concern, as significant progress has already been made, according to literature (Almaiah et al., 2016). The challenges of adopting an e-learning system in developing countries remain a reality due to the digital divide within developing countries (Eltahir, 2019). Students in distance education have more freedom regarding how and when they interact but suggest that their ability to govern their learning becomes crucial (Sun & Rueda, 2012). Due to the lack of interaction in online classes, students are more likely to be distracted by smartphones, pets, deliveries, and other things other than the continuing online lesson. Because there is no face-to-face interaction, it is assumed that students will be disinterested in the online class (Amadora, 2020).

According to Rost (2019), online learning forces students to work in groups and requires more participation and engagement. He discovered that online environments could give students a sense of anonymity, making it easier for them to withdraw, participate minimally, or completely disappear from the course. These theories revealed that students in online learning had anxiety, which resulted in low involvement. Some students in their younger years are referred to as "digital natives." Since kids became aware of their surroundings, the internet has become a part of their existence. He believes that digital literacy concerns will prevent some pupils from properly utilizing online resources while most students learn

new things and navigate the internet. Moreover, Jacob (2016) resources for learning went on to say that instructional software was difficult for preschool, kindergarten, and even early primary school kids to use because it needed the usage of a mouse or keyboard. Digital literacy is a critical component of online distance learning because without it, the problem of teaching.

Many teachers continue to oppose using an online pedagogical approach, believing that online learning will reduce student involvement, resulting in worse academic success than traditional face-to-face training (Lederman, 2018). Online courses lack in-person connection; students may feel isolated and separated from the learning community making it more challenging to engage with and learn from classmates and instructors (Friesen & Kuskis, 2013; Xu & Jaggars, 2014). The main challenges of e-learning system adoption in developing countries, for example, were a lack of ICT knowledge, poor network infrastructure, and a lack of content development (Aung & Khaing, 2015).

The findings revealed that Ghanaian students saw online learning as inefficient due to several difficulties. Students' lack of social connection, poor communication, a lack of ICT resources, and poor learning outcomes were among them. For example, looked at the immediate impact of COVID-19 on students' learning experiences. Six institutions in three countries provided evidence of both excellent experiences and pre-existing disparities. The issues raised are the lack of proper technologies, a lousy learning environment at home, student stress, and a lack of fieldwork and laboratory access (Amadora, 2020).

According to another study, school administrators collaborate with and through other people, whether planning and organizing or leading and monitoring. This means that each individual's communication skills impact both personal and professional relationships. Organizational effectiveness: It appears reasonable to conclude that a lack of effective communication is one of the most inhibiting forces for organizational success. (Alawnleh, Al-Twait, & Al-Saht, 2020). A lack of laboratory and hands-on experience with online courses is a significant disadvantage (Grundman, 2010). There are genuine difficulties that there is an interest among students in taking online courses and determining pedagogical methods. Some approaches can address those difficulties, such as topic clarification. Some approaches can address those difficulties, such as topic

clarification (Allen & Seaman, 2013).

In summary, the related literature discussed about Online Learning, Academic Performance, Effects of Online Learning, Perceived Strengths of Online Learning and Perceived Weaknesses of Online Learning, Gender Affecting in Online Learning, Problems and Challenges on Online Learning. The justification of the study basically identified the problem of the students regarding the perceived effects of online learning of the academic performance of senior high school students at Notre Dame of Midsayap College. According to Kim & Bonk (2012), many researchers and educators, particularly in higher education, are interested in using it to enhance and increase students learning outcomes. However, due to lack of communication between teachers and students, students who participate in online learning perform poorly, and their persistence and efficiency are also low (Hu & Li, 2017). We conduct this study to know the effects of online learning on the academic performance of Senior High School students. Based on the result of the study, students response are neither agree nor disagree. When compared to regular classes, students reported being less active in online classes. However, according to some respondents, enjoyed e-learning and comfortable settings were the top advantages of online learning.

Methodology

This study used a descriptive-correlational research design because it describes the profile of the respondents when grouped according to age, sex, and grade level, the perceived effects of online learning on the academic performance of senior high school students, and the problems met by the respondents regarding online learning. The study is also correlational because it determined the significant difference in respondents' perceptions of learning when grouped according to selected profiles.

Participants

The study was conducted in Notre Dame of Midsayap College, Quezon Avenue, Poblacion 5, Midsayap, Cotabato in the Municipality of Midsayap, Province of North Cotabato. The respondents are forty (40) senior high school students, enrolled for the academic year 2021-2022.

Instruments of the Study

The researchers utilized a researcher-made

questionnaire. The questionnaire used in the study comprised three main parts. Part I contains the personal profile of the respondents. Part II is about the perceived effects of online learning on the academic performance of SHS students. These are answered through a Likert scale: Strongly Agree (5), Agree (4), Neither Agree nor Disagree (3), Disagree (2), and Strongly Disagree (1). Part III consists of the problem encountered by senior high school students regarding online learning, where items will be ranked 1 for the least pressing problem and 10 for the most pressing problem.

Procedures

The researchers observed the following steps in the conduct of the study. First, the researchers secured permission from the Dean of the College of Education to conduct the study. After the approval, the researchers handed over a letter to the Senior High School Assistant Principal of Notre Dame of Midsayap College. The researchers asked for permission and approval to conduct the survey. The researchers already identified their respondents coming from Senior High School students before conducting the survey. As early as permission was granted, the distribution of survey questionnaire for the selected respondents was done through google form format.

The researchers gave ample time and effort to explain and clarify the respondents' questions to gather an accurate and reliable data. The quantitative method used in data analysis and interpretation. The researchers underwent the sorting out of questionnaire and coding guides, and coding sheets were done. Lastly, it was submitted to the statistician for statistical analysis.

Results and Discussion

Table 1. *Profile of the Respondents*

Profile	Frequency (f)	Percentage (%)
Sex		
Male	20	50
Female	20	50
Total	40	100
Age		
16	2	5
17	16	40
18	17	42.50
19	3	7.50
20	2	5
Total	40	100
Grade level		
11	20	50
12	20	50
Total	40	100

Table 2. *Perceived Effects of Online learning on the Academic Performance*

Items	Mean	SD	Description
1. Through online learning, it helps to improve my academic performance.	2.93	1.02	Neither Agree nor Disagree
2. Through online learning, it boosts my involvement in the class.	2.58	1.17	Neither Agree nor Disagree
3. Through online learning, I can submit my task on time.	2.55	1.15	Neither Agree nor Disagree
4. Through online learning, I actively participate in every discussion.	2.68	1.05	Neither Agree nor Disagree
5. Through online learning, I can concentrate on my studies.	2.55	1.06	Neither Agree nor Disagree
6. Through online learning, it helps me to improve my grades.	2.78	1.19	Neither Agree nor Disagree
7. Through online learning, it increases my academic output.	2.83	1.26	Neither Agree nor Disagree
8. Through online learning, it ensures effectiveness in terms of coping up with missed lectures.	2.73	1.28	Neither Agree nor Disagree
9. Through online learning, it helps me to comprehend the course materials.	2.93	1.16	Neither Agree nor Disagree
10. Through online learning, I can participate in collaborative learning activities.	2.63	1.27	Neither Agree nor Disagree
Overall	2.72	1.16	Neither Agree nor Disagree

Table 3. *Significant Difference According to Sex*

Sex	N	Mean	SD	Df	p-value	Indication	Decision
Male	20	2.86	0.87	38	0.28	not significant	Do not Reject Ho ₁
Female	20	2.58	0.72				

NS – Not Significant at 0.05 level of significance

Table 4. *Problems/Challenges Encountered by SHS Students Regarding Online Learning*

Challenges/Problems	Mean	SD	Rank
1. Lessons were missed due to poor internet connection	5.10	3.80	8
2. Lack of constant communication between students and instructor	4.85	2.85	9
3. Reduces involvement in class activities	5.23	2.53	6
4. Limited interaction amongst classmates	4.48	2.06	10
5. Unable to understand instructions and explanation	5.15	2.53	7
6. Difficulty to ask for clarification on certain topics	6.00	2.68	4
7. Distracted by other websites when using smartphone or laptop	6.03	2.45	3
8. Lack of fieldwork and laboratory access	6.40	2.46	1
9. Environment non-conducive for learning	5.83	2.98	5
10. Lessons were missed due to poor internet connection	6.18	3.55	2
Overall	5.53	2.79	

Conclusion

Based on the research finding, the researchers concluded that the respondent neither agreed nor disagreed on the perceived effects of online learning on the academic performance during the 2nd semester of the academic year 2021-2022. There are aspects or areas of qualities of instruction, learning materials and feature of online learning that need improvement to cater all the student's needs for their learning process. In summary, the instructions, learning materials and features of online learning were sufficient to provide quality education. Although distance learning has brought changes to the normal system of education, the NDMC is very flexible in finding an alternative way to bring hope, courage and pursue the dreams of every students using online learning.

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