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STUDENT ENGAGEMENT, CHALLENGES AND COPING MECHANISMS IN HIGH SCHOOL ONLINE DISTANCE LEARNING DURING COVID-19 PANDEMIC

Abstract. Most educational institutions made sure that instruction was uninterrupted at the start of the COVID-19 pandemic. As a flexible learning method, most schools chose online distance learning (ODL). Consequently, the Internet is among the many tools that ensures continuity in teaching and learning. Many schools have adopted ODL using their learning management system (LMS). However, schools are challenged in attaining the expected engagement among students. Students must cope with the new learning environment wherein they are physically separated from teachers and peers. This research aims to assess the engagement of senior high school in the ODL environment. Specifically, it describes the respondent's engagement profile, preferred learning resources and activities, and challenges faced in ODL. Student logs from the university LMS during the second semester of 2020 – 2021 were utilized for engagement profiling. On the other hand, an online survey was conducted among 424 students to gather their preferred learning resources, activities, and challenges experienced in ODL. Results show that assignments and files are the most common resources used during the ODL. It shows that attendance and quizzes are what students often visit. Quiz and Wiki are where students spend their time. The result indicates that Slideshows and PDF or MS word materials are the most preferred learning materials. The Lesson is the most preferred learning activity, and students perceived that this activity is the most useful in the ODL. Lack of motivation or confidence earned the highest mean of 3.49, described as "every time." Heavy workload, procrastination, lack of interaction, and technical issues are rated "every time," showing that respondents are heavily challenged. In terms of coping, the result indicates that daily login and breaking down responsibilities were the most common mechanism. Communicating with the teachers yielded the lowest coping mean. The study concludes that engaging students in online distance learning are very challenging, especially when learners are not ready. Preferences in terms of learning resources and activities are multi-faceted. There is a need to improve the variation of asynchronous activities like interactive multimedia, such as gamification.

Keywords: eLearning; ICT in education; online distance learning challenges; online distance learning coping; learning management system; student engagement; virtual classroom.

1. INTRODUCTION

Online Distance Learning (ODL) is a form of education that enables teachers and students to learn even when they are physically apart during class. Distance learning has focused on teaching activities and nontraditional students in remote locations where traditional classroom learning cannot occur. Distance learning is practical and efficient for

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obtaining more education because it is more accessible and convenient for most students from afar or people who cannot attend regular classes because of their employment, marital status, or family obligations [1]. It also satisfies students' growing demand for flexible learning [2]. Education has adapted to the situation's needs and has revolutionized so much with technology [3]. Online Distance Learning is an alternative where students receive instruction online via audio or visual schemes. It allows students to learn without being physically present in a classroom setup. Students and teachers can still engage and learn just as much without being in a classroom. Distance learning and education are synonymous and relatively not a recent technology [4]. Further, the ODL modality must be coupled with an institutional learning management system (LMS).

The problem statement. At the onset of the COVID-19 pandemic, most educational institutions ensured that learning was unimpeded. Like many schools worldwide, Silliman University, a private school in the Philippines, opted for online distance learning as a flexible learning mode. Hence, education continues with the use of the Internet. As an alternative, an ODL arrangement also comes with several challenges. Students could experience issues being not able to understand course information that is technical, quantitative, or scientifically oriented [5]. Because of the physical distance between the Instructor and the student, expectations for the course are frequently unclear, and issues may be challenging to address. It's also likely that the minimal teacher-student interaction affects how students learn in general [1]. In retrospect, another aspect that must be considered is the Instructor's preparedness and capacity to deliver exciting lectures and activities via ODL.

Most higher learning institutions were not given much time to transition to a fully online learning environment, thus jeopardizing ODL's efficacy. Because of the global pandemic, almost everything is a first time to many residential schools. Teachers and students attend full online distance learning. Student engagement remains a crucial challenge even though the current generation of students is thought to be a "digital native" and should be more accustomed to the online environment than prior generations. A few difficulties associated with participation in an ODL environment are a lack of technical proficiency, the inability to establish boundaries between school and personal life, the failure to connect with other students, the feeling of isolation, and the distraction caused by other applications [6]. These difficulties could result in attrition if they are not addressed [7].

Analysis of recent studies and publications. A survey conducted at Pangasinan State University collected results to answer the engagement and readiness of Senior High School (SHS) Students by determining their profile, the level of preparedness of SHS Students for Open and Distance Education, and the linear correlation of variables. The study's result shows that most students were engaged and ready for Open and Distance Education. Their proposed Online Learning Environment Model enabled students at the Senior High School level to fully utilize distance education [8]. A relatively exciting study by Peng [9] analyzed and studied students' engagement models given the characteristics of online learning activities. The study examined students' behavioral, cognitive, and emotional experiences during online learning. According to Peng, engagement is an indispensable part of learning, where active engagement promotes student learning.

A study of the relationship between students' engagement and their academic performances in an eLearning environment identified three measurable indicators for assessing learner engagement within the module. These were (i) the number of completed learning activities, (ii) the importance level (as per course outcomes) of completed learning activities, and (iii) activities requiring platform presence. It was found that there is a significant but weak positive correlation between students' engagement in the online module and their performances in the final learning activity [10]. Another study concluded that there are factors affecting students' engagement which include (1) social engagement of student

and teacher rapport, (2) collaborative engagement of peer support, and (3) learning passions. It is seen that students do engage in an online course as (1) cognitively engaged by understanding teaching materials and activities, (2) emotionally engaged by enjoying classroom learning activities, and (3) behaviorally engaged by participating in a discussion, developing problem-solving skills, and applying online learning norms in the classroom [11]. In addition, another study suggests creating an interactive experience through the development of web-based interactive slides so students can explore different modalities of content in a nonlinear and asynchronous manner with the hopes of making the learning process easier and more enjoyable for students [12]. Nonetheless, learners' attitudes are still critical to ensure students stay involved [13].

The research goal. This research aims to assess student engagement in an ODL environment. Specifically, it describes students' utilization of the learning activities and resources during ODL. It also measures the respondents' preferred learning activities, resources, and modalities. It also presents challenges and mitigation factors experienced by the students during ODL. This research aims to document student experiences during the height of the pandemic to provide recommendations for improvement. Hopefully, this research will provide additional literature about student engagement, challenges, and mitigation during ODL. In this study, learning activities include online assignments, an open forum, H5P, quizzes, and others. Learning resources include pre-recorded videos, YouTube, PDFs, and slideshows. ODL challenges include adaptability, procrastination, lack of motivation, and heavy workload.

2. LITERATURE REVIEW

The pandemic accelerates the use of learning management systems (LMS). Among the most popular and effective LMS is Moodle. Moodle is a free software application that helps educators plan, implement, and assess a specific learning process [14]. Any teacher can be part of the Moodle.org community. On the other hand, some communities customize and leverage Moodle offering additional proprietary features, like the Open LMS. Open LMS is an "open-source LMS created to help educators design online courses simply and collaboratively" [15].

In an ODL, activities and resources play a vital role in student engagement [16] [17]. Activities are virtual classroom tasks that teachers provide for students to perform. Typical activities include online quizzes, assignments, and forums, among others. On the other hand, resources are items used to support student learning; for example, a video of a lecture, a PowerPoint presentation, a PDF of lecture notes, or an article to read. Teachers are advised to post different types of resources to increase students understanding of the content. See table 1 for the Moodle-based activities and table 2 for the sample Moodle-based resources.

Table 1

Common Virtual Classroom Activities [15]

Assignment	The assignment activity module enables a teacher to communicate tasks, collect work and provide grades and feedback.
Attendance	The attendance activity module enables a teacher to take attendance during class and students to view their own attendance record.
Chat	The chat activity module enables participants to have text-based, real-time synchronous discussions.
Feedback	The feedback activity enables a teacher to create a custom survey for collecting feedback from participants using a variety of question types including multiple choice, yes/no or text input.
Forum	The forum activity module enables participants to have asynchronous discussions i.e. discussions that take place over an extended period of time.

H5P	H5P is an abbreviation for HTML5 Package - interactive content such as presentations, videos and other multimedia, questions, quizzes, games and more. The H5P activity enables H5P to be uploaded and added to a course.
Lesson	The lesson activity module enables a teacher to deliver content and/or practice activities in interesting and flexible ways. A teacher can use the Lesson to create a linear set of content pages or instructional activities that offer a variety of paths or options for the learner.
Open Forum	The Open Forum activity module enables participants to have asynchronous discussions, i.e., discussions that take place over an extended period of time.
Questionnaire	The questionnaire module allows you to construct surveys using a variety of question types, for the purpose of gathering data from users.
Pearson MyLab	Pearson offers integration between Moodle and its MyLab & Mastering products. This integration provides the ability for the Instructor and students to log in to Moodle and click a link from a Moodle course to access their MyLab & Mastering experience.
Quiz	The quiz activity enables a teacher to create quizzes comprising questions of various types, including multiple choice, matching, short-answer and numerical.
Zoom Meeting	Zoom is a video and web conferencing platform that gives authorized users the ability to host online meetings.
Choice	The choice activity module enables a teacher to ask a single question and offer a selection of possible responses.

Table 2

Common Virtual Classroom Resources [15]

Book	The book module enables a teacher to create a multi-page resource in a book-like format, with chapters and subchapters. Books can contain media files as well as text and are useful for displaying lengthy passages of information which can be broken down into sections.
File	The file module enables a teacher to provide a file as a course resource. Where possible, the file will be displayed within the course interface; otherwise students will be prompted to download it. The file may include supporting files, for example an HTML page may have embedded images.
Folder	The folder module enables a teacher to display a number of related files inside a single folder, reducing scrolling on the course page. A zipped folder may be uploaded and unzipped for display, or an empty folder created and files uploaded into it.
Label	The label module enables text and multimedia to be inserted into the course page in between links to other resources and activities. Labels are very versatile and can help to improve the appearance of a course if used thoughtfully.
Page	The page module enables a teacher to create a web page resource using the text editor. A page can display text, images, sound, video, web links and embedded code, such as Google maps.
URL	The URL module enables a teacher to provide a web link as a course resource. Anything that is freely available online, such as documents or images, can be linked to; the URL doesn't have to be the home page of a website. The URL of a particular web page may be copied and pasted or a teacher can use the file picker and choose a link from a repository such as Flickr, YouTube or Wikimedia (depending upon which repositories are enabled for the site).

Students encounter several ODL challenges during the pandemic. These challenges as college students experience self-regulation, technological literacy and competency, student isolation, technological sufficiency, technological complexity, learning resource, and learning environment challenges [18]. Elementary students experienced "poor internet connection, poor comprehension, and retention, lack of concentration, motivation, interaction and support" [19].

Coping mechanisms by college students are driven by a variety of "factors surrounding him/her, such as available resources, student personality, family structure, relationship with peers and teacher, and aptitude" [18]. Elementary students and parents and teachers should work together [19].

3. RESEARCH METHODS

This study was conducted at Silliman University, a private school in the Philippines that was founded in 1901. During the pandemic, the university offered full ODL from early childhood to graduate courses. Silliman University implemented an official learning Management System even before the pandemic.

This study is a quantitative method using an online survey and log analysis. An online survey was administered to gather information about the respondent's preferred learning activities and resources, including the modality. Challenges and coping mechanisms were also included in the online survey using the 4-items Likert Scale. The survey respondents were senior high school students enrolled during the 2nd semester of 2020-2021. A total of 424 responses were analyzed. Likewise, activity logs from the university LMS were used to assess the actual utilization of the learning activities and resources during ODL.

As an overview of the data gathering methods, all raw data are converted to serve the following quantitative purposes. First, converted data are collated to get the frequencies according to the minor and major fields required in the survey. Second, the data is calculated to derive the average mean and corresponding descriptive equivalents on the results from Preferred Learning Materials, Preferred Learning Activities, Modality, Online Distance Learning Challenges, and Mitigating Factors. Lastly, all derived data is arranged in tabular form with its respective values and performed statistical analysis using MS Excel–Pivot. In addition, IntelliBoard was utilized to extract statistical data in the learning management system of the university.

4. THE RESULTS AND DISCUSSION

4.1 Utilization of Learning Activities and Resources in the Virtual Classroom

Figure 1 shows the distribution of activities and resources in a virtual classroom. Results show that assignments and files are the most common resources used during the ODL. Assignment in this context is any digital content, including word processing documents, spreadsheets, photos, and audio and video clips, may be submitted by students [15]. Students might also be required to type text directly into the text editor as an alternative to, or in addition to, that method [15]. A task can also remind students of "real-world" tasks they must perform offline, such as art projects, which don't require using any digital materials [15]. Students may turn in their work either individually or together [15].

On the other hand, a file is used for presentation sharing, the inclusion of a mini website, and draft files of software programs for editing [15].

Figure 2 graph shows the average visit per activity in each virtual classroom. Attendance and quizzes are what students often visit during the ODL. In a Moodle-based virtual classroom, a teacher can declare multiple meeting sessions and can mark the attendance status as "Present," "Absent," "Late," or "Excused" or modify the statuses to suit their needs [15]. Attendance reports are available for the entire class or individual students. On the other hand, a quiz in a Moodle-based virtual classroom can be used as an exam, short quiz, exam practice using questions from past exams, and self-assessment [15].

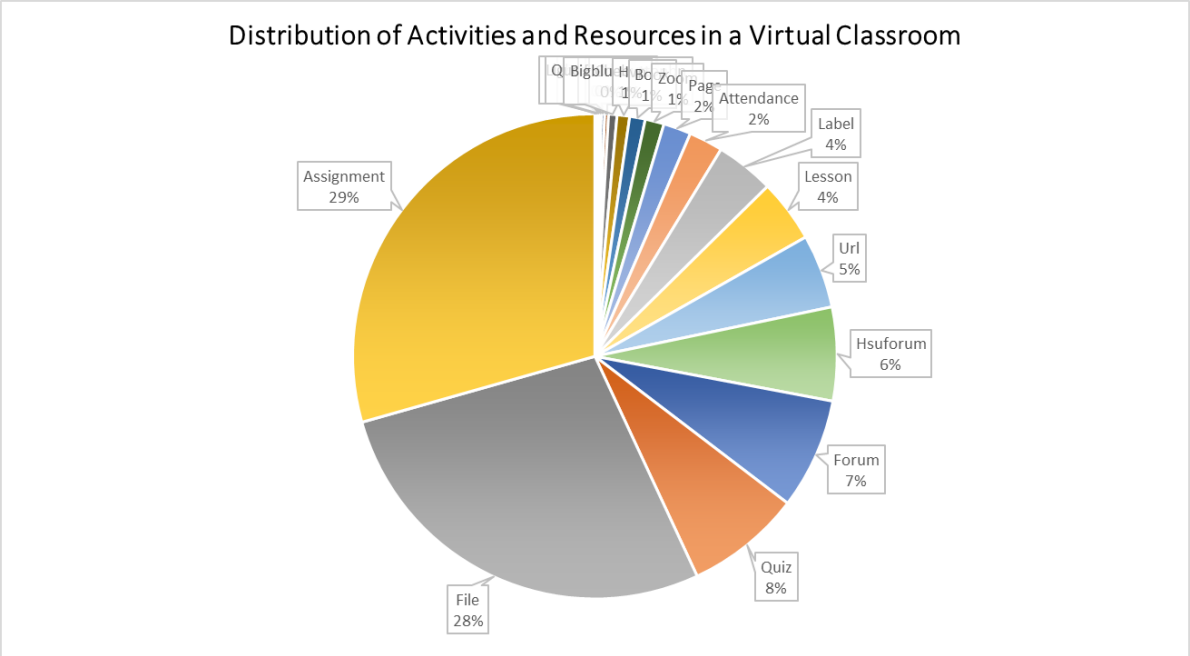

Figure 1. Distribution of Activities and Resources

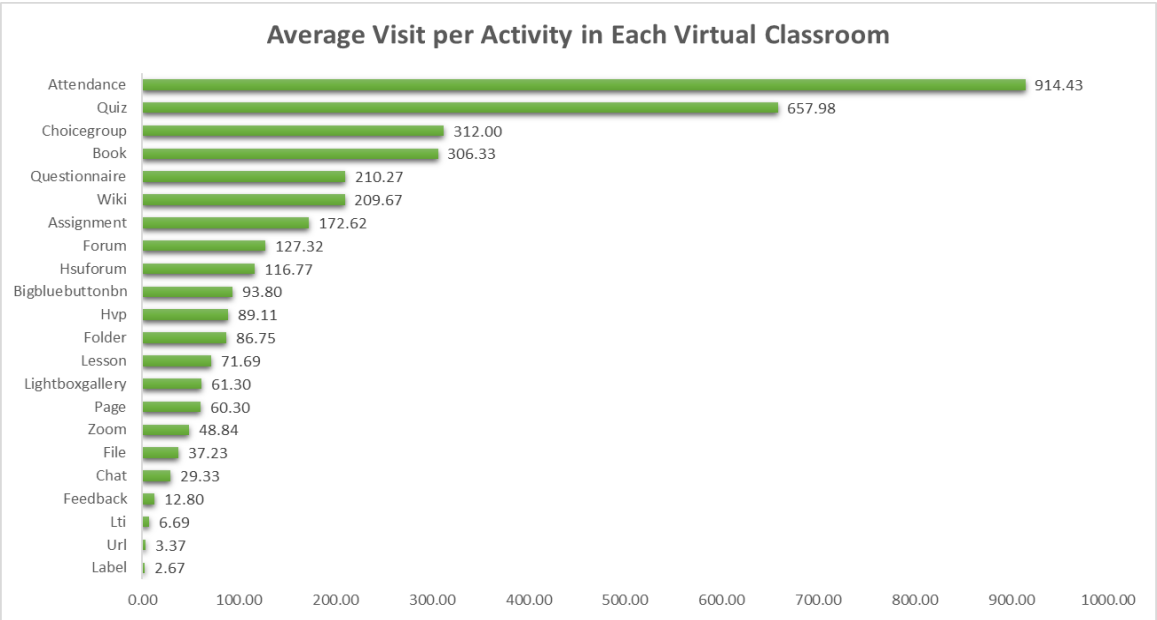

Figure 2. Average Visit per Activity in a Virtual Classroom

Figure 3 shows the average time spent per activity per virtual classroom. It indicates that Quiz and Wiki are where students spend most of their time. Furthermore, results show that there are 2,406.41 visits per course, and students spend an average time of 31.21 hours per virtual classroom. In a Moodle-based quiz [15], a teacher can permit the quiz to be attempted several times, with the questions shuffled or randomly selected from the question bank. A quiz can be time limited. A quiz can be set so that each attempt is marked automatically, except for essay questions, and the grade is recorded in the grade book. On the other hand, a Moodle-based wiki has many uses. It is used for group lecture notes, study guides, authorship, storytelling collaboration, and personal journal [15].

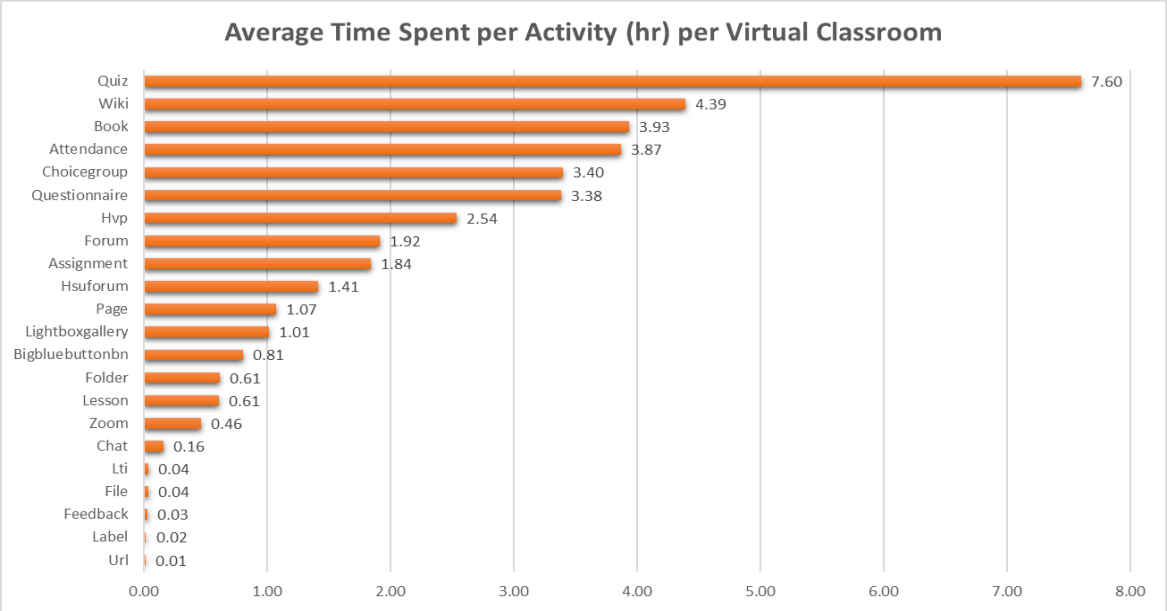

Figure 3. Average Time Spent per Activity in a Virtual Classroom

4.2 Preferred Learning Materials

Table 3 shows student engagement in terms of learning materials. It shows the mean preference level of students with the different learning materials offered during ODL. The result indicates that Slideshows and PDF or MS word materials are the most preferred learning materials, and students perceived that this material is the most useful in the ODL. Both were rated and described as "All the time" with a mean of 3.37 and 3.49, respectively. Other learning materials were rated as "Sometimes," with URL or Website links earning the lowest mean of 2.96.

Table 3

Preferred Learning Materials

Learning Material	Mean	Description
PDF, MS Word, Docs	3.49	All the time
Slideshows	3.37	All the time
Pre-recorded Video	3.25	Sometimes
Video Conference	3.24	Sometimes
YouTube, Vimeo, etc.	3.17	Sometimes
URL or Website links	2.96	Sometimes

The result shows that Slideshows and PDF or MS word materials are the most preferred learning materials across all sexes. Students perceived that this material was the most useful in the ODL. Both were rated and described as "All the time" with a mean of 3.4 and 3.49, respectively. Other learning materials were rated as "Sometimes," with URL or Website links earning the lowest mean of 2.96.

The result reveals that all grade level still finds Slideshows and PDF or MS word materials the most preferred learning materials. Students perceived that this material was the most useful in the ODL. Both were rated and described as "All the time" with a mean of 3.37 and 3.49, respectively. Other learning materials were rated as "Sometimes," with URL or Website links earning the lowest mean of 2.96.

The result shows that across all tracks or strands, Slideshows and PDF or MS word materials are still the most preferred learning materials. Students perceived that this material was the most useful in the ODL. Both were rated and described as "All the time" with a mean of 3.37 and 3.49, respectively. Other learning materials were rated as "Sometimes," with URL or Website links still earning the lowest mean of 2.96.

Table 4

Preferred Learning Activities

Learning Activities	Mean	Description
Lesson	3.48	All the time
Assignment	3.23	Sometimes
Quiz	3.12	Sometimes
Forum / Open Forum	2.89	Sometimes
e-book	2.58	Sometimes
Pearson MyLab	1.89	Not Preferred
H5P	1.67	Not Familiar

Table 4 shows the preferred learning activities among the respondents. It shows the mean preference level of students with the different learning activities performed during ODL. The result indicates that the Lesson is the most preferred learning activity and students perceived that this activity is the most useful in the ODL. It was rated and described as "All the time" with a mean of 3.48. The result also shows that the H5P activity was never introduced to the students and that the students could not use this material. It earned the lowest mean of 1.67. Notably, students felt that the Pearson MyLab activity was not desirable, and students perceived that this activity was not useful in the class, with a mean of 1.89. Assignments, Forum or Open Forums, Quizzes, and e-books were all rated as "sometime," which means that these learning activities were occasionally preferred, and the students perceived that these materials were moderately useful in ODL.

The result shows that the Lesson is the most preferred learning activity across all sexes, and students perceived that this activity is the most useful in the ODL. It was rated and described as "All the time" with a mean of 3.48. Result also shows that eBook activity was never introduced to the students and that the students could not use this material. It earned the lowest mean of 1.07.

The result shows that Lesson is still the most preferred learning activity among grades 11 and 12 students. They perceived this activity as the most useful in the ODL. It was rated and described as "All the time" with a mean of 3.48. Result also shows that eBook activity was never introduced to the students and that the students could not use this material. It earned the lowest mean of 1.07.

When grouped according to track or strand, the result shows that the Lesson is still the most preferred learning activity among all Tracks or Strands. Students perceived that this activity was still the most useful in the ODL. It was rated and described as "All the time" with a mean of 3.48. Result also shows that eBook activity was never introduced to the students and that the students could not use this material. It earned the lowest mean of 1.07.

4.3 Challenges Faced in ODL

Table 5 shows the mean level of the different challenges encountered and experienced during ODL. The result shows that among the various challenges, Procrastination and the temptation to quit, Lack of motivation or confidence, Heavy workload that may result in

mental health problems, and Lack of interaction or communication among co-learners were the top challenges that the students were facing during ODL and that the students consistently encounters this problem. Lack of motivation or confidence earned the highest mean of 3.49. Other challenges were rated and described as "occasionally," with both Human or pet intrusions and Low digital competence or literacy earning the lowest mean of 2.53.

Table 5

ODL Challenges

Challenges as perceived by students	Mean	Description
Low digital competence/literacy	2.53	Occasionally
Human/pet's intrusions	2.53	Occasionally
Adaptability (Switching from traditional classroom setting to ODL)	3.17	Occasionally
Feelings of isolation (Physically separated from teachers and peers)	3.17	Occasionally
Time management	3.19	Occasionally
Technical issues (bad internet connection, outdated software/hardware)	3.27	Every time
Lack of interaction/communication among co-learners	3.27	Every time
Procrastination and the temptation to quit	3.32	Every time
Heavy work load that may result to mental health problems	3.46	Every time
Lack of motivation/confidence	3.49	Every time

4.4 Coping Mechanisms

Table 6 shows the mean level of the different mitigating factors as a counter to the various challenges faced during ODL. The result shows that among the various mitigating factors, Logging in daily to see course updates and class discussions and Break down responsibilities were the most common ones. Both were described as "Every time," with a mean level of 3.57 and 3.44, respectively. Results also showed that communicating with faculties earned the lowest mean, 2.28. Other mitigating factors were rated and described as "occasionally," meaning that students moderately used these factors to mitigate ODL challenges.

Table 6

Coping Mechanisms

ODL Challenges Mitigating Factors	Mean	Description
Identify time-wasters	3.07	Occasionally
Break down responsibilities	3.44	Every time
Avoid trying to multitask	2.87	Occasionally
Log in daily to see course updates and class discussions	3.57	Every time
Connect with other students and share questions or perspectives	3.11	Occasionally
Communicate with faculty	2.28	Rarely
Schedule study time	2.86	Occasionally
Practice positive self-talk	2.82	Occasionally

This study yielded satisfactory results based on the engagement of Silliman University Senior High School students in the ODL environment. Specifically, this study described the respondent's engagement profile, preferred learning resources and activities, and challenges faced in ODL. It was observed that despite the different learning materials offered during ODL, results show that students prefer slideshows, pdf, and word files similar to traditional

handouts they've experienced during face-to-face classes. This proves that the perceived usefulness is as effective in ODL as in a conventional setup. It was also observed that students, among all provided learning activities, prefer a humble lesson that is much more effective and is perceived as effective, similar to how traditional classes are held in classrooms. The result suggests that learning resources and activities were prepared collaboratively, and active learning was emphasized [20]. The results also denote that there was a reconfiguration of active learning leading towards flipped learning [21]. The result also suggests that through the learning management system, learning resources and activities become more engaging and more time effective [22].

It was also observed that challenges arise despite changes in the norm. The majority still experienced procrastination, temptation to quit, and lack of motivation. It should be noted that despite changes in the delivery mode, it still retains issues encountered in a traditional learning environment. The result shows that because students are unprepared for online learning, they face pedagogical, technological, and psychological challenges [23].

The findings conducted to determine mitigating factors for the challenges faced in ODL are still shadowing existing challenges in a traditional learning environment. The result suggests that students' strategies to sustain learning during the pandemic are shaped by "different factors surrounding him/her, such as available resources, student personality, family structure, relationship with peers and teacher, and aptitude [18]". The result may suggest that the coping mechanisms experienced by students became easy because of the teacher's support and guidance counseling [24].

5. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

Student engagement is challenging in online distance learning when learners are not ready. Student engagement in an online distance learning environment is exceptional during the pandemic. Students are caught unprepared and challenged but have achieved a certain level of resiliency in learning. Students have varying learning preferences. Students can learn asynchronously with PDF, Word, Docs, and Slideshows reading materials. The learning activities and resources during the pandemic reflect how teachers prepare for the virtual classroom.

The degree of challenges experienced by the students varies, which is affected by interrelated components. Students are challenged with technological, behavioral, social, and ethical issues. Students needed support mechanisms to lessen challenges during the spike of the pandemic. On the other hand, students were creative and determined to mitigate undesirable circumstances during the pandemic. Students have acquired a certain degree of digital resiliency during the pandemic.

This research recommends improving the variation of asynchronous activities like interactive multimedia such as gamification. Notes and handouts must be considered primary teaching resources. Moreover, teachers must explore or improve other learning formats' instructional designs to avoid monotonous discussions. On the other hand, students should be fully engaged with the learning management system, such as turning on notifications and fully utilizing the mobile application. Teachers should consider applying the "10-level guide for engaging students during emergency online classes in low-resource settings" [25].

Schools must have an established office overseeing all ODL-related readiness to lessen and manage the challenges. Transformative and disruptive digital leadership must be in-placed in schools [26]. A digital transformation framework must be formulated, stipulating the technical components and social and ethical aspects. ODL training and upskilling sessions must be holistic, inclusive, and protect the well-being of the students and teachers.

A thorough analysis should be conducted specifically on the instructional design of the learning resources prepared. Correlational research should be conducted on how instructional design affects student engagement. Likewise, a study should be performed on how students engage in any assessment. A survey of how resources and activities differ among different groups of respondents should be conducted. An analytics study should be performed using Moodle logs to map the actual engagement of the students. Moreover, further research on how self-determination theory affects student engagement during the pandemic [27]. Furthermore, an in-depth study should be conducted on the variables that trigger ODL challenges and the compounding factors to mitigate these challenges.

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ЗАЛУЧЕННЯ УЧНІВ, ПРОБЛЕМИ ТА МЕХАНІЗМИ ПОДОЛАННЯ СТРЕСОВИХ СИТУАЦІЙ У ДИСТАНЦІЙНОМУ ОНЛАЙН НАВЧАННІ В СТАРШІЙ ШКОЛІ ПІД ЧАС ПАНДЕМІЇ COVID-19

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Анотація. На початку пандемії COVID-19 більшість навчальних закладів подбали про безперервність навчання. Дистанційне онлайн навчання (ДОН) (Online Distance Learning – ODL) як гнучкий метод було обрано більшістю шкіл. Інтернет є одним з багатьох інструментів, які забезпечують безперервність викладання та навчання. Багато шкіл впровадили ДОН (ODL), використовуючи власну систему управління навчанням (СУН) (Learning Management System – LMS). Однак школам важко залучити очікувану кількість студентів, які повинні справлятися з новим навчальним середовищем, де вони фізично відокремлені від учителів і однолітків. Представлене дослідження має на меті оцінити залучення студентів старшої школи до середовища ДОН (ODL). Зокрема в дослідженні надається профіль респондента, який має бути залучений, рекомендовані навчальні ресурси і види діяльності, а також визначені проблеми, які виникають під час здійснення ДОН

(ODL). Для створення профілів були використанні реєстраційні дані студентів із СУН (LMS) університету за період другого семестру 2020 – 2021 років. Крім цього, було проведено онлайн опитування серед 424 студентів. які відповіли на питання щодо більш цікавих для них навчальних ресурсів, видів діяльності та проблем, з якими вони стикаються під час проведення ДОН (ODL). Результати дослідження показують, що найбільш поширеними навчальними ресурсами під час ДОН (ODL) є поставлені завдання і файли, що надаються, а також те, що студенти часто використовують вікторини, найбільш популярними серед яких є Quiz і Wiki. Крім цього, навчальними матеріалами, які найчастіше використовують, є слайд-шоу та матеріали у форматі PDF або MS Word. Найбільш прийнятним видом навчальної діяльності студенти визнали урок, зазначивши його найбільшу користь під час ДОН (ODL). Брак мотивації або впевненості з позначкою «кожного разу» було оцінено студентами середнім балом 3,49. Велике навантаження, зволікання, відсутність взаємодії та технічні проблеми оцінюються як «кожного разу», що свідчить про те, що респонденти стикаються з великими труднощами. Під час дослідження було визначено, що найпоширенішим механізмом для подолання проблем був щоденний вхід і розподіл обов'язків, а найнижчим рівнем – спілкування з учителями. Отже, залучити до онлайн навчання непідготовлених до нього студентів дуже складно. Існує надто великий спектр навчальних ресурсів і діяльності, до яких прихильні студенти, а також потреба покращити різноманітність асинхронних дій, таких як інтерактивні мультимедіа, наприклад, гейміфікація.

Ключові слова: електронне навчання; ІКТ в освіті; виклики дистанційного онлайн навчання; дистанційне онлайн навчання; система управління навчанням; залучення студентів; віртуальний клас.

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