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Background: Self-efficacy expresses a learner's perception of how well they can do in the online academic setting. Although students' academic successes can be measured by online learning self-efficacy, there is a scarcity of evidence targeted toward allied health students.

Objective: The primary aim of this study is to determine the level of online self-efficacy among students from skill-based allied health programs. The secondary aim is to correlate online self-efficacy with age, sex, year level, and program of the students.

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Methods: This cross-sectional analytic study utilized the Online Learning Self-Efficacy Scale (OLSE) to determine students' level of self-efficacy via a survey conducted with students who underwent the Enriched Virtual Mode of learning. Descriptive statistics was used to characterize the study participants, describe the level of self-efficacy, and compare the subscales of OLSE. Inferential statistics using Spearman's rho was performed to determine the correlation.

Results: A total of 117 respondents with a mean age \pm SD of 20.59 ± 0.11 years old, predominantly female (71%) were included in the study. The students from allied health programs had an online self-efficacy overall mean score of 3.83 (SD = 0.05; range 2.64–5.00) with the use of technology subscales weighted the highest mean score (4.24). Females have a higher average OLSE score (M = 3.92, SD = 0.05) compared to males. Significant correlation was found between OLSE scores to sex ($r = 0.260$, $p = 0.005$) and year level ($r = -0.199$, $p = 0.031$) while nonsignificant correlation was found between OLSE scores to the program ($r = -0.048$, $p = 0.604$) and age ($r = -0.123$, $p = 0.185$).

Conclusion: Students of allied health programs generally have a very good level of online self-efficacy. This study assists educators in developing proactive strategies and approaches to promote students' self-confidence across all domains and encourage them to adopt a dynamic remote learning-based approach. Educational institutions should use this opportunity to assess how well they have implemented remote learning to ensure educational continuity, especially in times of crisis.

Keywords: Online learning; self-efficacy; allied health sciences.

Introduction

The COVID-19 virus was declared a global pandemic by the World Health Organization in March 2020. This pandemic has had a significant impact on various sectors, including educational institutions.^{1–3} As a result of the virus, face-to-face classes were mandated to be canceled by the government, leading to a sudden shift toward online learning to mitigate the effects of the pandemic on students, academic staff, and institutions.^{2,4–7}

As a response, the academic staff of the University of Santo Tomas (UST) underwent training to effectively utilize technology and provide a positive learning experience for students in the safety of their homes. To achieve this, UST implemented a learning strategy known as Enriched Virtual Mode (EVM). This mode of instruction rooted in the principles of communion and encounter promote dialogue to ensure accessibility and flexibility in learning.^{8,9} EVM at UST involves both asynchronous and synchronous teaching methods. Pre-recorded lectures and learning materials are shared asynchronously through platforms like YouTube™, Panopto™, or Google Drive™, while live discussions, demonstrations, and assessments take place synchronously using video conferencing platforms such as Zoom™ or Google Meet™.

Different degrees of online learning approach have been adopted, allowing flexibility to accommodate discipline-specific guidelines and policies based on individual contexts and needs.

Recognizing the various health, financial, and social concerns that beset both teachers and students, the university acknowledged the need to strengthen the communication channels and facilitate fluidity in instruction to provide every learner with the opportunity to continue learning despite the uncertain circumstances and varying limitations. A study conducted by Lapitan *et al.* found that several local education institutions have adopted a blended learning strategy primarily in undergraduate courses. Similarly, the implementation of EVM has increased flexibility and accessibility for learners, regardless of their connectivity.¹⁰

Despite the advantages of these modes of online learning, there are ongoing discussions worldwide regarding the effectiveness of fully online courses compared to face-to-face learning. Some studies have reported better outcomes in online learning, while others, such as Cole *et al.*'s study in 2014, have highlighted negative impacts on student satisfaction, particularly among skill-based allied health degree programs that utilize the Objective Structured Clinical Examination (OSCE) for evaluation.^{11–14} The OSCE is a method of assessing clinical skills in medical education, where students are observed applying these skills on simulated patients within a set timeframe and are scored based on specific criteria. The study by Cole *et al.* suggested that online learning may not adequately provide the clinical practice and patient interaction experiences necessary for these professions.

Furthermore, Khalil and colleagues in 2020 indicated that pre-clinical students generally had a more favorable response to online learning compared to clinical students. While online classes allowed students to study at their own pace and proved effective for theoretical courses, clinical students lacked the practical experiences they needed for their profession.^{15–19}

In the context of online learning, self-efficacy, as defined by Albert Bandura's Social Cognitive Theory, refers to an individual's belief in their ability to successfully accomplish a planned task and achieve desired outcomes.^{20,21} Regarding online academic settings, self-efficacy encompasses a learner's perception of their proficiency in various aspects, such as completing the course, navigating the course material, engaging socially and academically with peers, and interacting with instructors. Numerous studies emphasize the significance of self-efficacy in predicting and mediating students' online academic performance, making it a prominent topic in educational psychology.^{22,23}

There are several factors to consider in measuring online learning and self-efficacy, such as type of program, age, and gender. Some have reported that a learner's age is a critical predictor of student online learning success, wherein older students are more likely to get higher grades than their counterpart young ones.²⁴ Attention is given to the year level where technology is introduced. Also, previous studies provided contradictory findings regarding gender differences in e-learning satisfaction. However, a recent meta-analysis reported no gender difference in terms of online self-efficacy.²⁵ On the one hand, various measures exist to assess online self-efficacy objectively. For example, Zimmerman and Kulikowich developed the Online Learning Self-Efficacy Scale (OLSES).¹⁵ This scale is a reliable tool used to measure students' self-efficacy in online learning and consists of three subscales that assess self-efficacy in learning within an online environment, time management, and technology usage. These components are essential for fostering student independence in an online learning environment.^{26,27}

Self-efficacy plays an important role in online learning delivery, yet there is a need to further elucidate on how to determine the level of online self-efficacy and other factors may influence the success of online learning experience. Thus, the primary aim of this study is to determine the level of online self-efficacy among students from

skill-based allied health programs in the University of Santo Tomas' EVM pure online set-up of learning. The secondary aim is to correlate online self-efficacy with age, sex, year level, and program of students from allied health programs with skill-based components at the University of Santo Tomas on the EVM.

Materials and Methods

Study design

This cross-sectional analytic study utilized the OLSE to determine students' level of self-efficacy via a survey conducted among students who underwent the EVM of learning from the allied health programs with a skill-based practical examination. This design was used to examine the relationship of a particular variable of interest at one point in time. The study has been reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.²⁸ The study protocol is registered in the Philippine Health Research Registry with the registration number PHRR220211-004318.

Ethics approval

The study obtained ethical approval from the University of Santo Tomas College of Rehabilitation Sciences Ethics Review Committee (SI-2021-028-OR). This study complied with the Declaration of Helsinki and Good Clinical Practice Guidelines of the Philippine Health Research Ethics Board and abided with the Data Privacy Act of 2012.

Sample size

The estimation of sample size was based on the number of year level, number of sections, and class size. The crude estimation of 2276 students across all programs satisfies the inclusion criteria. With a 95% confidence level using Cochran's sample size formula ($z = 1.96$, $p = 0.5$, $q = 0.5$, $d = 0.05$), a total of 362 students were selected as the sample size, with an added 10% attrition rate in case participants drop out.²⁹

Recruitment and participants

This study used purposive sampling.³⁰ This sampling technique was used to select participants

congruent with the purpose of the study.³¹ Participants were recruited from students and graduate students from allied health programs with skill-based components in the context of online learning through the EVM of learning at UST. Recruited participants of ages 15–17 were asked to procure the consent of their legally accepted representatives (LARs) by filling up a separate consent form requiring the uploaded signature of both the participant and their respective LAR. The population was divided into their programs. The sample was selected from undergraduate students across all year levels and graduate students of physical therapy (PT), occupational therapy (OT), speech-language pathology (SLP), medical technology (MT), and nursing programs, provided they meet the set criteria. Inclusion criteria include students from select allied health programs who have undergone the EVM of learning in UST and practical examinations involving pretending patient participation in the online classroom setting like an OSCE approach that was verified with the involved academic units.

Setting

The study was conducted using Google Forms™ as the instrument and setting for data collection. Data gathering procedures thereby utilized online means such as Social Networking Sites and Google System. Meanwhile, the researchers had performed data analysis at the University of Santo Tomas campus at Sampaloc, Manila.

Procedure

A pilot test was conducted among the researchers and advisers prior to full-scale implementation as part of the data gathering procedure.³² The researchers also secured the basic approval from each academic society adviser to seek assistance in disseminating the invitation letter along with the Google Forms link of the survey. Once approved, the academic societies endorsed the invitation letter to the students via their social media pages. Data collection ran from August to November 2022. The researchers then evaluated all submitted surveys to ensure that the data for analysis only came from eligible participants.

The survey used the OLSES as the outcome measure tool and Google Forms™ as the platform. The questionnaire requested for the participants'

demographic information, such as age, sex, program, and year level; it was followed by a 22-item OLSES questionnaire. The questionnaire was exclusive of individualized student's academic learning performance pursuant to compliance with local laws such as the Data Privacy Act of 2012 and a local university data privacy stipulation. A Google Forms setting was enabled to ensure that participants had to answer all the items in the Google Forms™ survey prior to submission. Contact details of the researchers were put in the questionnaire for possible clarifications and concerns. The self-administered survey took approximately 10 min to complete.

Instrument

This study utilized the original OLSES composed of 22 items divided into three groups: learning in the online environment (10 items), time management (5 items), and technology use (7 items).¹⁴ The basic scoring system for each item entailed a 5-point Likert-type defined as "I completely disagree (1), I disagree (2), I am undecided (3), I agree (4), and I completely agree (5)". Classification of OLSES scores was done as follows: scores from 1.00 to 1.79 were classified as poor; scores from 1.80 to 2.59 were classified as fair; scores from 2.60 to 3.39 were classified as good; scores from 3.40 to 4.19 were classified as very good; scores from 4.20 to 5.00 were classified as proficient.³³

According to Yavuzalp, the scale has a 0.987 Cronbach's alpha reliability coefficient of internal consistency. Furthermore, according to the study of Panergayo and Mansujeto, learning in the online environment has an excellent reliability index with a 0.925 Cronbach's alpha, while the subscales Time Management and Technology Use were both interpreted as good with 0.880 and 0.897 Cronbach's alpha, respectively. The scale's original (English) language was established, and the content validity was confirmed based on the specialists' suggestions in the field of study.^{33,34}

Data analysis

All analyses were performed using the Statistical Packages for Social Sciences software, version 21.0 (SPSS, Chicago, IL, USA). Statistical significance had been accepted at $p < 0.05$. Descriptive statistics characterized the study participants and described the level of self-efficacy. Frequency and

percentage were used for categorical variables, while the mean and standard deviation for continuous variables. Both statistical (Kolmogorov–Smirnov test for $N \geq 50$ and Shapiro–Wilk’s test for $N < 50$) and graphical methods (normal probability plots) were utilized to examine the fit to a normal distribution for each continuous variable. Continuous variables that were not normally distributed were otherwise characterized by medians (interquartile range). Inferential statistics had been performed using Spearman’s rho between online self-efficacy, sex, and allied health programs. Cohen’s recommendation of interpretation of linear relationship was used, where $|r| < 0.30$ is considered as weak relationship, $0.30 < |r| < 0.50$ is considered as moderate relationship, and $|r| > 0.50$ is considered as strong relationship.^{35,36}

Results

Sociodemographic characteristics

The analyzed data were obtained from a total of 117 eligible participants based on the set criteria with mean \pm SD age of 20.59 ± 0.11 years, predominantly female (71%). Students coming from a total of five allied health programs with skill-based components in the University of Santo Tomas’ EVM pure online set-up of learning were included in the study. Fifty-one percent were PT students, 12% were OT students, 9% were SLP students, 13% were MT students, and 15% were nursing students.

Characterization of OLSE scores

A Kolmogorov–Smirnov test ($p > 0.05$) for males ($N = 83$) and a Shapiro–Wilk’s test ($p > 0.05$) for females ($N = 34$), visual inspection of the histogram, normal Q-Q plots, and box plots showed that the OLSE scores were approximately normally distributed for both sexes, with a skewness of 0.14 and kurtosis of 0.58 for males and a skewness of -1.29 and kurtosis of -0.59 for females. On the other hand, a Shapiro–Wilk’s test ($p > 0.05$) for OT ($n = 14$), MT ($n = 15$), and nursing ($n = 17$) students and similar graphical methods for normality showed that the OLSE scores were approximately normally distributed for students across the identified programs. However, PT students ($n = 60$) had a Kolmogorov–Smirnov test ($p > 0.05$) and SLP students had a high kurtosis of 1.99 and visual inspection of graphs indicating a

probable non-normal distribution of OLSE scores of students under the said programs. Even though a nonparametric test was utilized, the results would not be overly affected by the presence of outliers.

The students from allied health programs with skill-based components in the University of Santo Tomas’ EVM pure online set-up of learning had an online self-efficacy overall score of 3.83 (SD = 0.05) which can be classified as very good. The minimum score was 2.64 which is classified as good while the maximum score reached 5.00 which is classified as proficient.

Females had a higher average OLSE score ($M = 3.92$, SD = 0.05) compared to males ($M = 3.63$, SD = 0.09) which are both classified as very good. Table 1 shows that across allied health programs, SLP students had the highest average OLSE score ($M = 4.05$, SD = 0.12), followed by OT students ($M = 3.93$, SD = 0.11), nursing students ($M = 3.89$, SD = 0.12), PT students ($M = 3.83$, SD = 0.06), and MT students ($M = 3.53$, SD = 0.14) who had the least average OLSE score. All programs had a very good classification of OLSE score.

Table 2 shows the overall mean per item and weighted mean per component of OLSE across allied health students. It was determined that across the three subscales of OLSE, the mean score for self-efficacy was very good on learning in the online environment and time management with a weighted component mean of 3.72 and 3.50, respectively, and was proficient on use of technology with a weighted component mean of 4.24. It was also reported that among the items of OLSE, Item 18 on using synchronous technology to communicate with others (such as Skype) had the highest overall mean score of 4.50 classified as proficient whereas Item 21 on using the library’s online resources efficiently had the lowest overall mean score of 2.42 classified as fair.

Correlation of OLSE scores between variables

Spearman’s rho correlation test was computed to assess the correlation between the OLSE scores of 117 participants to their age, sex, year level, and program. Table 3 shows the results of the Spearman’s rho correlation test ($p < 0.05$). There was a significant correlation between OLSE scores to sex $r(117) = 0.260$, $p = 0.005$, and year level $r(117) = -0.199$, $p = 0.031$. Meanwhile, there was

Table 1. Overall OLSE mean score of allied health students.

Items	Program				
	PT	OT	SLP	MT	Nursing
OLSE — Learning in the Online Environment Subscale					
4. Communicate effectively with technical support via e-mail, telephone, or live online chat	3.27	4.07	4.00	3.13	3.88
6. Overcome technical difficulties on my own	3.55	3.93	3.73	3.8	4.12
10. Learn to use a new type of technology efficiently	4.07	4.14	4.27	3.93	4.24
11. Learn without being in the same room as the instructor	3.42	3.57	3.55	2.8	3.47
12. Learn without being in the same room as other students	3.55	3.79	3.73	2.73	3.59
15. Communicate using asynchronous technologies (discussion boards, e-mail, etc.)	4.02	4.14	4.27	3.67	3.71
17. Complete a group project entirely online	4.45	4.43	4.64	4.00	4.24
18. Use synchronous technology to communicate with others (such as Skype)	4.55	4.36	4.64	4.20	4.59
21. Use the library's online resources efficiently	2.47	2.43	2.45	2.00	2.59
22. When a problem arises, promptly ask questions in the appropriate forum (e-mail, discussion board, etc.)	3.83	3.43	4.27	3.00	3.89
Weighted Component Mean	3.72	3.83	3.96	3.33	3.83
OLSE — Time Management Subscale					
8. Manage time effectively	3.27	3.5	3.55	3.07	3.12
9. Complete all assignments on time	4.2	4.29	4.18	3.87	3.65
16. Meet deadlines with very few reminders	3.7	3.57	4.09	3.33	4.06
19. Focus on schoolwork when faced with distractions	2.68	3.07	3.00	2.20	3.24
20. Develop and follow a plan for completing all required work on time	3.67	3.64	4.00	3.13	3.76
Weighted Component Mean	3.50	3.61	3.76	3.12	3.57
OLSE — Use of Technology Subscale					
1. Navigate online course materials efficiently	4.05	4.21	4.45	4.00	4.18
2. Find the course syllabus online	4.43	4.64	4.64	4.07	4.41
3. Communicate effectively with my instructor via e-mail	3.78	3.93	4.18	3.40	3.53
5. Submit assignments to an online drop box	4.45	4.57	4.64	4.54	4.41
7. Navigate the online grade book	4.33	4.36	4.27	4.00	4.12
13. Search the Internet to find the answer to a course-related question	4.18	4.29	4.18	4.47	4.29
14. Search the online course materials	4.35	4.00	4.45	4.33	4.29
Weighted Component Mean	4.22	4.29	4.40	4.12	4.18
Average OLSE Score	3.83	3.93	4.05	3.53	3.89

Notes: OLSE = Online Learning Self-Efficacy Scale; PT = physical therapy; OT = occupational therapy; SLP = speech-language pathology; MT = medical technology.

Table 2. Overall OLSE score of allied health students categorized per subscale.

Items	Overall mean
OLSE — Learning in the Online Environment Subscale	
4. Communicate effectively with technical support via email, telephone, or live online chat	3.50
6. Overcome technical difficulties on my own	3.73
10. Learn to use a new type of technology efficiently	4.10
11. Learn without being in the same room as the instructor	3.38
12. Learn without being in the same room as other students	3.50
15. Communicate using asynchronous technologies (discussion boards, e-mail, etc.)	3.97
17. Complete a group project entirely online	4.38
18. Use synchronous technology to communicate with others (such as Skype)	4.50
21. Use the library's online resources efficiently	2.42
22. When a problem arises, promptly ask questions in the appropriate forum (e-mail, discussion board, etc.)	3.73
Weighted Component Mean	3.72

Table 2. (Continued)

Items	Overall mean
OLSE — Time Management Subscale	
8. Manage time effectively	3.27
9. Complete all assignments on time	4.09
16. Meet deadlines with very few reminders	3.73
19. Focus on schoolwork when faced with distractions	2.78
20. Develop and follow a plan for completing all required work on time	3.64
Weighted Component Mean	3.50
OLSE — Use of Technology Subscale	
1. Navigate online course materials efficiently	4.12
2. Find the course syllabus online	4.43
3. Communicate effectively with my instructor via e-mail	3.75
5. Submit assignments to an online drop box	4.49
7. Navigate the online grade book	4.30
13. Search the Internet to find the answer to a course-related question	4.25
14. Search the online course materials	4.31
Weighted Component Mean	4.24
Overall OLSE Score	3.83

Note: OLSE = Online Learning Self-Efficacy Scale.

Table 3. Spearman rho correlation of online learning self efficacy scores.

			Age	Sex	Year level	Program
Spearman's rho	OLSE	Correlation coefficient	−0.123	0.260	−0.199	−0.048
		Sig. (2-tailed)	0.185	0.005*	0.031*	0.604
		N = 117				

Notes: * p -value < 0.05 is considered significant. OLSE = Online Learning Self-Efficacy Scale.

a nonsignificant correlation between OLSE scores to the program $r(117) = -0.048$, $p = 0.604$, and age $r(117) = -0.123$, $p = 0.185$.

Discussion

The focus of this study is to determine the level of online self-efficacy of allied health students during the pandemic when institutions switch to online learning. Previous research found that even if students regularly use technology, they may feel less confident when they first experience online education amid crises like the COVID-19 pandemic because the skills needed for an online learning environment differ from those needed for regular computer and technology use.³⁴ Various studies have concluded that self-efficacy, self-confidence, and academic performance have a directly proportional relationship.^{37–39} As the participants

have an overall very good level of self-efficacy, it can be drawn that they have self-confidence that they would be able to navigate the online learning set-up which would also positively affect their academic performance.

Participants rated highest in the Use of Technology Subscale, wherein students were found to be able to navigate, search, and find online course materials efficiently, as well as effectively communicate with instructors online. This concurs with a study wherein skill-based allied health students deliver and perform at an advanced level in platforms for virtual teaching and learning environment, thus, improving the effectiveness and efficiency of the learning process.⁴⁰ Meanwhile, participants rated lowest on Time Management Subscale. In accordance, several studies have highlighted that students were found to procrastinate more during online learning compared to when they were in class. Consequently, challenges

when it comes to time management often result in technology fatigue, heavy workload, unmonitored asynchronous sessions, poor participation, as well as substandard output ratings.⁴¹ The results likewise illustrate the vulnerability of the students when faced with multiple distractions, such as multi-tasking, to effectively accomplish numerous concurrent activities, such as having several browser tabs for book reading, note taking, and group work while having a smartphone within reach as well as reduced teacher supervisions.⁴² To maximize the significant role of time management in online academic success, allied health students can then employ self-regulated strategies to manage their time well. These include the proven effective practice by online students of using time-based planners such as Google Calendar to be able to see all important deadlines in one place and block tasks so as to schedule long-term assignments and long course topics over time.⁴³

In assessing the level of OLSE for each item from the subscales, it was observed that Item 19 — pertaining to the use of synchronous technology to communicate with others during class discussions — garnered the highest mean score across all participants. It can be speculated that students have no or have very low difficulty in the utilization of various online learning platforms. This corroborates with a cross-sectional mixed-method study by Chesterton *et al.*, wherein more physiotherapist students perceive synchronous than asynchronous sessions both advantageous as they treat the former as a means to clarify points with instructors, interact more with peers, and be more engaged with the subject, while the latter are used to reinforce and deepen understanding.⁴⁴ This result suggests continued and maximized use of synchronous technology emphasizing on its capability to provide allied health students with the means to be directly observed and be provided with immediate personalized feedback during skill evaluation. In fact, Zoom™ has been used by medical schools to conduct OSCEs remotely at the height of the pandemic, which prompted the development of a Web-OSCE which gave the opportunity to practice effective clinical skills necessary for telemedicine-type encounters.⁴⁵ Educators of online allied health students are then proposed to constructively structure their course delivery method according to the right purposes whether to improve theoretical knowledge or develop practical skills.

Item 21 (*use of online libraries for education*), on the other hand, had the lowest average score of all the items. This demonstrates how few students take advantage of unrestricted access to educational resources that enable them to solve problems independently and improve their competence as professionals. According to Wang, managing information is a big challenge especially since most online libraries are still systematized using traditional methods which calls for the need to shift to a more user-friendly interface to keep up with the changes in technology and increase the usage of online libraries in universities.⁴⁶ Consequently, it is the joint responsibility of the academe and students to regularly conduct and respond to feedback and evaluations in improving online library, respectively. These disadvantages, however, should not eliminate the advantages of technology use which clearly overweighs its downsides; thus, further actions are warranted to meet halfway and improve its overall use.⁴⁷

The study's secondary aim was to explore the correlation between a student's OLSE score and variables such as age, sex, year level, and program. The study found a significant correlation between OLSE scores and sex, implying that it may affect one's online self-efficacy. This corroborates with studies concerning university students that showed males have higher levels of technology self-efficacy, while females have higher scores of online discussion participation compared to the opposite sex. Also, a significant correlation was found between the OLSE score and year level. This may be ascribed to the fact that those students who are new to the learning management system and style of conducting teaching and learning online differed from those in the higher year levels.

The study also found no significant correlation between the OLSE scores of students among different allied health programs in UST and year level.^{47,48} This can be indicative of the academic units having equal or similar levels of preparation during the pandemic with a similar age range or cohort of students entering the tertiary level. This can also be attributed to the fact that UST has been using online platforms even before the pandemic struck. This may have significantly decreased the adaptations needed by both the students and teachers for an EVM.

The study serves to be novel in providing evidence about online learning self-efficacy among students in allied health programs, particularly

concerning the OSCE approach. Furthermore, the study made use of the OLSE which can identify, through its subscales, which specific areas of online learning need improvement to increase the students' self-efficacy in learning.

The study, however, should be read considering several limitations. There were methodological limitations that hampered the study, but the researchers were able to come up with solutions to mitigate them. With regards to scope limitations, the study was not able to investigate any effects of the COVID-19 pandemic, such as developing symptoms of oneself and family members, financial issues, as well as having previous experience of an online learning mode in high school or earlier years to the level of online learning self-efficacy of the participants. The scope of the study was likewise limited in terms of considering the academic load among the participants. It should have been noted that the academic load between regular and irregular students differs, as it does per year level, specifically considering the curriculum distribution for general education and professional courses.

The allied health students' online learning self-efficacy, particularly on clinical practices and patient interaction experiences required for their profession, is an essential factor to consider in conducting a successful remote learning-based approach. This study revealed that OLSE domains (learning in an online environment, time management, and technology) did not affect their online learning self-efficacy during the emergency shift to remote learning owing to COVID-19. With the scope of the study being limited to allied-health UST students, a larger sample, such as additional courses and schools, would be recommended to acquire more accurate data regarding online self-efficacy. In terms of gathering data, collecting the general weighted average of each sample may be included in future research. Further research could extend this study's approach to produce a tool that will categorize a further interpretation of the OLSE score. Also, a source for standardization of cut-off scores is required to determine which scores have high self-efficacy and low self-efficacy.

The study recommends the higher educational institutions to focus on areas for continued development such as how to encourage proper time management, improve student self-efficacy in the use of online library resources, and even how to resolve the discrepancy in the level of the online learning self-efficacy across different programs,

different year levels, and opposite sex. Furthermore, the researchers will furnish a copy of the results to the stakeholders of the study including those in the academe, the student organizations, and the research participants to become a reference as to which programs are having low self-efficacy and what domains of online self-efficacy they are struggling in that need further reinforcement.

Although this study determined online learning self-efficacy among UST allied health students, future studies could examine a larger sample such as other courses, public school students, and students from far-flung areas of the country to determine whether there are significant differences among their levels of self-efficacy in learning online amidst COVID-19. In terms of gathering data, collecting the general weighted average (GWA) of each sample may be a significant contribution to future research. Stress and other possible domains that may affect the OLSE of a sample may be another recommendation.

Conclusion

Skill-based allied health students' online learning self-efficacy, particularly based on clinical practices and patient interaction experiences required for their profession, is an essential factor to consider in conducting a successful remote learning-based approach. However, this study concluded that OLSE domains (learning in an online environment, time management, and use of technology) did not significantly affect the participants' online learning self-efficacy during the emergency shift to remote learning owing to COVID-19.

Declaration of Conflict of Interest

All authors declare no conflicting interests.

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Author Contributions


Dr. Donald G. Manlapaz conducted the conceptualization and design of the study, analyzed the data and drafted the initial manuscript, and approved the final manuscript as submitted. Cristine Rose S. Versales and John Micko A.

Pazcoguin, participated in the initial analyses, reviewed and revised the manuscript, and approved the final manuscript as submitted. Justin Jeremiah Ching, Marcela Joyce Bartolome, Samantha Lavin Da Silva, Kertlouie Gabriel Edquila, Lara Francheska Fulo, Yvonne Geisel Benezet Male, Joey Patricia Peña, and Ramon Miguel Pineda conducted the conceptualization and design of the study, data collection and drafted the initial manuscript and approved the final manuscript as submitted.


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