Readiness of College Students in Online Learning Amidst Covid-19 Pandemic

Dr. Flordeliza P. Ferrer, Dr. Mary Grace A. Aquino

Abstract— The study made an assessment of the online learning readiness of the respondents during the time of COVID-19 pandemic and was able to determine factors affecting students' readiness. In measuring the level of readiness, the Online Learning Readiness Scale (OLRS) developed by Hung et al. (2010) was adopted. Readiness in terms of the following dimensions were considered in the analysis: computer/internet self-efficacy, self-directed learning, learner control, motivation for learning, and online communication self-efficacy. Data on profile variables such as gender, school type where students completed their secondary education, course in college, and grade in mathematics were also collected to determine factors affecting the students' readiness. Survey results disclosed that the respondents' level of readiness in the study and of some universities presented in the literature review showed similar patterns across five dimensions. Significant differences in readiness were noted when respondents are grouped according to school type and grade. The observed patterns of level of readiness and differences in level of readiness exhibited in self-directed learning, learner control and communication self-efficacy. Enhancing students' readiness in the aforementioned dimensions, where patterns and variations were noted, may directly indicate positive impact to respondents' level of readiness across five dimensions as seen from correlation statistics.

Index Terms— — Online learning readiness, computer/internet self-efficacy, self-directed learning, learner control, motivation for learning, online communication self-efficacy.

1 Introduction

THE global lockdown due to COVID-19 pandemic has greatly impacted the educational system. With this sudden shift away from the classroom, both teaching and learning dramatically changed and compelled to digital transformation. Various educational institutions have resorted to adoption of online learning in many parts of the global community. They have to strategically explore and select the digital platforms and learning management systems that are practical and best suited to the needs of their stakeholders particularly the faculty and the students. Like other higher education institutions in the Philippines, our university took a few months to prepare for the opening of the academic year 2020-2021 due to collaborative and extensive planning about the appropriate design of the digital campus including funding, acquisition, installation, and other processes related to establishing the online learning system. Faculty members had to undergo series of training, workshops, or the so-called webinars on digital and internet technology, online teaching strategies, and simulation sessions with the students on the use of the new learning platform.

Since it was the first time for the university to implement pure online learning mode, several challenges were encountered by both faculty and students. Adjustments in the curriculum, schedule of classes, communication, class interactions, and other academic activities were necessary to cope with these challenges. Faculty members were required to revisit, revise, and redesign their course syllabi to fit the new learning mode and conducted their online classes in synchronous and asynchronous modes.

- *Dr. Flordeliza P. Ferrer is currently a professor in Pamantasan ng Lungsod ng Maynila, Manila, Philippines. E-mail: fpferrer@plm.edu.ph*
- *Dr. Mary Grace A. Aquino is currently an associate professor in Pamantasan ng Lungsod ng Maynila, Manila, Philippines. E-mail: mgaaquino@plm.edu.ph*

With their initial experiences and adjustments, educators believe that students' engagement remains as one of the core pillars to be given attention as the system shifted from the traditional face-to-face to online learning. Issues in internet connectivity, availability of smart gadgets, and the learning environment at home were among the concerns of the university management because these factors eventually had great implications to the students' motivation to learn, participate in online class activities, interaction with their professors and classmates. These issues led us to look into the students' online learning situations. With the assumption that students attain the expected learning outcomes when they are ready to experience the different learning opportunities provided to them, we reviewed several studies on students' readiness in online learning. Students' readiness in various dimensions of online learning together with students' profile were considered in the analyses of most research studies conducted in the past, both in the local and international communities.

Enthused by previous investigations, this study was conducted to assess the online learning readiness of the respondents. Specifically, the study sought answers to the following research questions:

(1) What is the level of online learning readiness of the respondents in terms of the following dimensions: self-directed learning, learner control, motivation for learning, computer/internet self-efficacy, and online communication self-efficacy?

(2) How do respondents' level of readiness compare to samples of other universities in the local and international communities?

(3) Are there significant differences in the level of readiness when respondents are grouped according to profile variables?

(4) Are there significant relationships in the responses of the

samples as regards their readiness across five dimensions?
Similar to the results of the studies reviewed which provided essential information to educators and school managers, this study is also expected to provide information as basis for the succeeding university plan of actions.

1.2 Review of Studies on Readiness in Online Learning of Students

To further understand the readiness dimensions and present information on the universities mentioned in the second research question, this study reviewed the following studies published in the past three years. They all utilized Online Learning Readiness Scale (OLRS) survey instrument developed by Hung et. al (2010) to gather data from the student-respondents in various universities located within the country.
In a survey on readiness for online learning conducted in a university in Western Visayas, Philippines, one hundred forty-nine (149) students participated. Among the five OLRS dimensions, motivation for learning displayed the highest mean while learner control has the lowest mean The researcher found out that there were no significant differences in the readiness of students in online learning in terms of gender and other profile variables (Oducado, 2021).
Sixty-five (65) students participated in a survey conducted in a university in Southern part of Luzon, Philippines. Similar to the results of Ocado (2021), among the five OLRS dimensions, the highest mean was registered in motivation for learning while learner control has the lowest mean. Various components from the survey results were considered for the determination of tools and features of their learning management system (Dela Cruz & Catura, 2020).
Two hundred seventy-one (271) students participated in a survey conducted in a university in Western Luzon, Philippines. The same pattern as observed by Ocado (2021) and Dela Cruz & Cultura (2020) was noted among the five OLRS dimensions, where motivation for learning posted the highest mean with learner control being the lowest. Data showed that gender and school type graduated have no significant differences across the five dimensions (Estira, 2020).
Two hundred ninety-seven (297) students participated in a survey conducted in a university in Northern Luzon, Philippines. Among the five OLRS dimensions, motivation for learning recorded the highest mean while learner control has the lowest mean. This is consistent with the findings of the studies earlier mentioned. Highlights disclosed no significant differences in online learning readiness based on students' gender and school type graduated (though found significant in two dimensions self-directed learning and motivation for learning). Significant difference in academic discipline was noted in the study (Gacrama, Bacena Corpuz & Acosta, 2019).
Nine hundred ninety-five (995) students participated in a survey conducted in a university in the Central Luzon region of the Philippines. Among the five OLRS dimensions, learner control registered the highest mean while motivation for learning and online communication efficacy have the lowest mean. Results revealed that those with higher online learning readiness were female and that the respondents' course provided valuable insights on the readiness level for online learning (Formoso, 2018).
Similarly, the following studies published in the past four years were considered in the literature review. These utilized OLRS survey instrument developed by Hung et. al (2010) to gather data from the student-respondents in various universities located outside the country. Likewise, the review includes the survey conducted by the authors who developed the ORLS instrument.
Three hundred forty (340) students participated in a survey conducted in a university in Pakistan. Among the five OLRS dimensions, motivation for learning registered the highest mean while learner control has the lowest mean. It was reported that there were significant differences in readiness when respondents were grouped according to gender (male higher than female in computer/internet self-efficacy and online communication self-efficacy) and degree programs (with differences in computer/internet self-efficacy, motivation for learning and online communication self-efficacy). The students' grades also exhibited a significant positive influence on self-directed learning and learning motivation. The students with higher grades were more likely to be self-learners and more motivated to explore new ideas during online learning in the time of pandemic than those students with lower grades (Rafique, Mahmood, Warraich & Rehman, 2021).
Two hundred forty-four (244) students participated in a survey conducted in a university in Saudi Arabia. Again, motivation for learning displayed the highest mean while learner control has the lowest mean. Results showed that students' readiness level for online learning is within the acceptable range while they noted that some improvements are needed (Alhubaishy, 2020).
Ninety-one (91) students participated in a survey conducted in a university in Malaysia. Among the five OLRS dimensions, computer/internet self-efficacy registered the highest mean while learner control has the lowest mean. It was also found that gender was not a significant factor that affect student online readiness (Chung, et. al, 2020)
Ninety-five (95) students participated in a survey conducted in a university in Turkey. Among the five OLRS dimensions, online communication self-efficacy posted the highest mean while learner control has the lowest mean. Further, it was found in the study that there was a meaningful relationship between students' online learning readiness and the individual's emotional intelligence dimension (Engin, 2017).
One thousand fifty-one (1,051) students participated in a survey conducted in a university in Taiwan. Among the five OLRS dimensions, computer/internet self-efficacy recorded the highest mean with learner control being the lowest. This study found that gender made no statistical differences in the five OLRS dimensions (Hung, Chou, Chen & Own, 2010).

2 METHODOLOGY

2.1 Research Method

The study used the descriptive method of research. This type of research method, aside from gathering and tabulating information, also involves data analysis, interpretation, comparison, correlation, and identification of trends.

2.2 Online Learning Scale (OLRS)

This study adopted the Online Learning Readiness Scale (OLRS) developed by Hung, Chou, Chen and Own in 2010. OLRS is an 18-item scale divided into five sub-scales called dimensions. The five dimensions are: (1) computer/internet self-efficacy (OCS); (2) self-directed learning (SDL); (3) learner control (LC); (4) motivation for learning (MFL); and (5) online communication self-efficacy (OCS). Permission to use the OLRS instrument was granted by the authors who developed the scale. Two hundred (200) sample students participated in this study. The students answered to a 5-point Likert-type scale, with responses ranging from "1-strongly disagree" to "5-strongly agree". In addition to OLRS, other variables were also collected from the participants such as gender (female or male), school where they completed their secondary education (public high school or private high school); course (IT-related or not); and grade in mathematics subject taken during the Second Semester of Academic Year 2020-2021.

2.3 Statistical Treatments

The following statistical treatments were applied to analyze the data collected from the respondents: mean, standard deviation, Mann-Whitney U test, Z-ratio, Kruskall-Wallis H Test, Pearson r and t-test for correlation.

The mean (average) level of readiness of respondents is calculated by considering the weights of 1-5 based on the response of the samples (from strongly disagree to strongly agree) in the given statements pertaining to readiness. Higher scores in the OLRS indicate higher readiness. The following scale of means was used to interpret the findings: low readiness 1.00-2.00, moderately low readiness 2.01-3.00, moderately high readiness 3.01-4.00, and high readiness 4.01-5.00.

Standard deviation was computed to measure the dispersion of the response of the samples relative to its mean level of readiness. A smaller value of standard deviation indicates a relatively smaller dispersion of a dataset relative to its mean.

Mann-Whitney U test, a nonparametric test that allows two independent groups to be compared without assuming that values are normally distributed (Broto, 2008), was utilized to determine the difference between the readiness of respondents when grouped according to gender, school type graduated and course in college. The z-score was likewise computed since the distribution was found to be approximately normal. The difference for both was considered significant for p-value less than 0.05.

The Kruskal–Wallis test, a nonparametric approach to compare three or more groups on a dependent variable (Broto, 2008) was employed to determine the difference among respondents when grouped according to their grade in mathematics. The difference was considered significant for p-value less than 0.05.

The Pearson product-moment correlation coefficient together with the t-test for correlation (Hair, Black, Babbin, & Anderson, 2010) was applied to determine if there is a significant relationship between the level of online learning readiness of the participants in terms of the aforementioned dimensions. The relationship was considered significant for p-value less than 0.05.

- *Dr. Flordeliza P. Ferrer is currently a professor in Pamantasan ng Lungsod ng Maynila, Manila, Philippines. E-mail: fpferrer@plm.edu.ph*
- *Dr. Mary Grace A. Aquino is currently an associate professor in Pamantasan ng Lungsod ng Maynila, Manila, Philippines. E-mail: mgaaquino@plm.edu.ph*

3 RESULTS AND DISCUSSION

3.1 On Respondents' Profile

The two hundred (200) respondents of this study are all first-year students enrolled in various courses during the Second Semester of Academic Year 2020-2021 and attended the online classes from their homes amidst the pandemic. Sixty-four percent (64%) of them are female students, and thirty-six percent (36%) are male students. Sixty-five percent (65%) graduated from private high schools, while thirty-five percent (35%) from public schools. Thirty-nine percent (39%) of them have grades in mathematics above average (91-99); thirty-seven percent (37%) are average (83-91); and twenty-four percent (24%) are below average (77-82).

3.2 On Readiness of Respondents Compared to Other Samples

Table 1.
Online learning readiness of research sample and five universities inside the Philippines

OLRS Dimensions	Research Sample	Universities Inside the Philippines				
		1	2	3	4	5
Computer/internet self-efficacy	3.91	4.12	4.02	3.33	3.79	4.06
Self-directed learning	3.64	3.83	3.84	3.46	3.63	3.74
Learner control	3.29	3.38	3.68	3.11	3.27	4.21
Motivation for learning	4.08	4.34	4.41	3.98	4.13	3.67
Online communication self-efficacy	3.27	3.52	3.90	3.17	3.57	3.67

Data from Table 1 reveals that among the five dimensions of online learning readiness, the respondents of this study exhibited the highest mean level in motivation for learning (4.08, high), followed by computer/internet self-efficacy (3.91, moderately high), self-directed learning (3.64, moderately high), learner control (3.29, moderately high), and online communication self-efficacy (3.27, moderately high).

The researchers analyzed the respondents' level of readiness in this study alongside those of the studies conducted locally by Oducado (2021); Dela Cruz & Catura (2020); Estira (2020); Gacrama, Bacena Corpuz & Acosta (2019); and Formoso (2018). The research samples in the respective universities recorded moderately high in self-directed learning (3.46-3.84) and

online communication self-efficacy (3.17-3.67). Five out of the six universities posted moderately high in learner control (3.11-3.68), with four of them displaying the lowest level of readiness in this dimension.

Table 2.
Online learning readiness of research sample and five universities outside the Philippines

OLRS Dimensions	Research Sample	Universities Outside the Philippines				
		1	2	3	4	5
Computer/internet self-efficacy	3.91	3.66	3.94	4.23	3.46	4.37
Self-directed learning	3.64	3.62	3.72	3.80	3.64	3.75
Learner control	3.29	3.37	3.51	3.49	3.11	3.60
Motivation for learning	4.08	3.88	4.09	3.79	3.59	4.01
Online communication self-efficacy	3.27	3.47	3.72	3.69	3.67	3.93

Likewise, the level of readiness of the respondents with the level of readiness of the samples in the aforementioned studies conducted in the international communities, were analyzed. The respondents from the six universities involved in this research and in the studies of Rafique, Mahmood, Warraich & Rehman (2021); Alhubaishy (2020); Chung, et. al, 2020; Engin (2017); and Hung, Chou, Chen & Own, 2010), demonstrated moderately high in self-directed learning (3.62-3.80), online communication self-efficacy (3.27-3.93), and learner control (3.11-3.60). Five out of the six universities are noted to be lowest in learner control. The figures in Tables 1 and 2 provide insights that the samples from the local and international communities displayed same patterns of level of online learning readiness of the students across the five dimensions.

3.3. On Computer/Internet Self-Efficacy of Respondents

Table 3.
Respondents' readiness as regard to computer/internet self-efficacy dimension

Online Learning Readiness Dimension and Statements	Agree (Percent)	Mean	Description	Standard Deviation
Computer/internet self-efficacy		3.91	moderately high	
I feel confident in my knowledge and skills of how to manage software for online learning.	60%	3.63	moderately high	0.84
I feel confident in performing the basic functions of Microsoft Office programs (MS Word, MS Excel, and MS PowerPoint).	79%	4.00	high	0.75
I feel confident in using the Internet (Google, Yahoo) to find or gather information for online learning.	81%	4.10	high	0.78

In the OLRS dimension, computer/internet self-efficacy, out of the 200 respondents, 60 percent agreed that they feel confident in their knowledge and skills of how to manage software for online learning; 79 percent agreed that they feel confident in performing the basic functions of Microsoft Office programs (MS Word, MS Excel, and MS PowerPoint); and 81 percent agreed that they feel confident in using the Internet (Google, Yahoo) to find or gather information for online learning (Table 3). The standard deviations range from 0.75-0.84, almost close to each other in terms of the variability of responses. The overall response constitutes moderately high level (3.91) of online learning readiness of the respondents in computer/internet self-efficacy.

These results may be accounted to students' training during their senior high school years wherein "Media and Information Literacy" is part of their core curriculum across the country (DepEd, December 2013). In addition, through the applied track subject, Empowerment Technologies, grades 11 and 12 students are expected to "use the Internet as a tool for credible research and information gathering" (DepEd, May 2016). The recent data on the most visited websites in the Philippines, Google.com has about 1.05 billion total visits while Yahoo.com hits approximately 58.5 million visits within the survey time period as of December 2020 (Statista.com, 2021).

Table 4.
Differences in respondents' readiness as regard to computer/internet self-efficacy dimension

Profile Variables		Mean	U-Value	Z-Ratio	P-Value	Interpretation
Gender	Female	3.90	4553.0	-0.1387	0.8887	not significant
	Male	3.92				
School Type Graduated	Private	3.95	4081.0	1.2000	0.2301	not significant
	Public	3.83				
Course	IT-Related	3.90	3643.0	-0.0129	0.9920	not significant
	Non-IT	3.91				
Grade in Mathematics	Above Ave	4.00	4.5336 (H-value)		0.1036	not significant
	Average	3.92				
	Below Ave	3.74				

The findings revealed no substantial differences in the level of readiness of the respondents in terms of the OLRS dimension, computer/internet self-efficacy, when grouped according to profile variables gender (p=0.8887), type of school where they completed their secondary education (p=0.2301), course in college (p=0.9920) and grade in mathematics (p=0.1036) (Table 4). These results support the conclusions derived from earlier investigations that gender (Hung et. al, 2010; Gacrama et. al, 2019; Chung, et. al, 2020; Estira, 2020; Oducado, 2021) and type of school where the respondents completed their secondary education (Gacrama et.al., 2019; Estira, 2020) made no statistical differences in their level of readiness. Regardless of gender and type of school, the respondents exhibit moderately high confidence in their knowledge and skills in computer or internet use which may be explained by the integration of these skills in the educational system. In a study which reviewed two scholarly works, "several policy actions" were disclosed on the information communication technology integration in the Philippine basic educational system (Tomaro & Mutiarin, 2018). Similarly, in a report of UNESCO Institute for Statistics in 2012 on ICT integration and e-readiness in schools across

Asia, the Philippines' national curriculum includes "specific objectives or course on basic computer or computing skills" in the lower and upper secondary levels (Wallet & Melgar, 2014). Computer/internet self-efficacy was about online learners' ability to demonstrate proper computer and internet skills (Hung et al., 2010). Computer self-efficacy "incorporates judgments of the ability in using a computer to apply those skills to broader tasks such as preparing written reports or analyzing financial data" (Compeau and Higgins, 1995 as cited in Kass, 2014). Internet self-efficacy extends "from real classrooms to virtual settings" (Kim et al., 2013 as cited in Kao & Chien, 2017) and it is an individual's evaluation and successful performance of "his or her Internet tasks independently" (Kuo et al., 2014 as cited in Kao & Chien, 2017).

This self-efficacy was found to be an essential factor that influence the students' use of the learning management system which contribute to their academic achievements (Binyamin et al., 2018). A student who perceives themselves as being able to competently use computers is more likely to be engaged in an online course (Wolverton et al, 2020). Previous studies showed that computer self-efficacy is positively related to learning performance and learning engagement (Chen, 2017).

3.4 On Self-Directed Learning of Respondents

Table 5.
Respondents' readiness as regard to self-directed learning dimension

Online Learning Readiness Dimension and Statements	Agree (percent)	Mean	Description	Standard Deviation
Self-directed learning		3.64	moderately high	
I manage time well.	34%	3.13	moderately high	0.91
I carry out my own study plan.	54%	3.45	moderately high	0.92
I set up my learning goals.	69%	3.80	moderately high	0.81
I seek assistance when facing learning problems.	74%	3.95	moderately high	0.91
I have higher expectations for my learning performance.	66%	3.88	moderately high	0.90

In the OLRS dimension, self-directed learning, out of the 200 respondents, 74 percent agreed that they seek assistance when facing learning problems, which may have been encouraged by the provision of consultation hours with their professors outside their actual class sessions as well as activities that require collaborative learning tasks. Sixty-nine (69) percent agreed that they set up their learning goals; 66 percent agreed that they have higher expectations for their learning performance; 54 percent agreed that they carry out their own study plan; and 34 percent agreed that they manage time well (Table 5). The standard deviations range from 0.81-0.92, almost close to each other in terms of the variability of responses. The overall response constitutes moderately high level (3.64) of online learning readiness of the respondents in self-directed learning. Aside from being expected to have cultivated learning and innovation skills, which include self-direction, during their basic education (Deped, 2019), the respondents may have eventually learned to manage themselves as they participate in online activities such as answering online multiple-choice question exercises with multiple attempts which provide students with opportunities to examine their learning, to device new strategies to perform better, and enjoy the process of self-directed learning (Lee, et al., 2021).

Table 6.
Differences in respondents' readiness as regard to self-directed learning dimension

Profile Variables		Mean	U-Value	Z-Ratio	P-Value	Interpretation
Gender	Female	3.67	4303.0	0.7750	0.4354	not significant
	Male	3.59				
School Type Graduated	Private	3.70	3727.5	2.1054	0.0349	significant*
	Public	3.52				
Course	IT-Related	3.58	3330.0	-0.9082	0.3628	not significant
	Non-IT	3.66				
Grade in Mathematics	Above Ave	3.77	9.5878 (H-value)		0.0083	significant*
	Average	3.58				
	Below Ave	3.52				

*Significant at p-value less than 0.05.

The research outcomes exhibited no considerable differences in the level of readiness of the respondents in terms of the OLRS dimension, self-directed learning, when grouped according to profile variables gender (p=0.4354) and course in college (p=0.3628). These confirm the results of the surveys done before that gender (Hung et. al, 2010; Gacrama et. al, 2019; Chung, et. al, 2020; Estira, 2020; Oducado, 2021) and course in college (Rafique et. al, 2021) disclosed no significant differences in their level of readiness. These also imply that Self-directed learning centered on learners' taking responsibility for the learning context to reach their learning objectives (Hung et al., 2010). This requires students to take ownership of their own learning, to become agents in the learning process, to engage in active learning and to enjoy the satisfaction of learning (Swart, 2018). As self-directed learners, students must have minimum control over the time, pace, and place for learning (Loeng, 2020). Better self-directed learning processes contribute to better learning outcomes and academic achievement among students learning in online learning environments (Torun, 2020). Learners who have the ability to manage themselves understand the factors contributing to self-directed learning, choose specific strategies and activities, monitor their individual learning, and demonstrate specific interpersonal skills (Swart, 2018).

3.5. On Learner Control of Respondents

Table 7.
Respondents' readiness as regard to learner control dimension

Online Learning Readiness Dimension and Statements	Agree (percent)	Mean	Description	Standard Deviation
Learner control		**3.29**	**moderately high**	
I am not distracted by other online activities when learning online (instant messages, internet surfing).	17%	2.48	moderately low	1.04
I can direct my own learning progress.	46%	3.35	moderately high	0.82
I repeated the online instructional materials on the basis of my needs.	78%	4.03	high	0.72

In the OLRS dimension, learner control, out of the 200 respondents, only 17 percent agreed that they are not distracted by other online activities when learning online (instant messages, internet surfing); but 46 percent agreed that they can direct my own learning progress; and 78 percent agreed that they repeated the online instructional materials on the basis of my needs (Table 7). The standard deviations range from 0.72-1.04, higher dispersion of responses was observed in the first statement. The overall response constitutes moderately high level (3.29) of online learning readiness of the respondents in learner control. A vast number of online data and learning materials platforms allow students to revisit their websites for further exploration or review of previous references. Requiring professors to upload their instructional materials or modules and recorded synchronous meetings in the university's official learning system enable the respondents to review the lessons tackled and the content of the posted learning materials. However, online environment does not limit students to perform multiple tasks simultaneously which may interfere their learning.

Table 8.
Differences in respondents' readiness as regard to learner control dimension

Profile Variables		Mean	U-Value	Z-Ratio	P-Value	Interpretation
Gender	Female	3.27	4404.0	-0.5180	0.6031	not significant
	Male	3.32				
School Type Graduated	Private	3.35	3740.5	2.0722	0.0385	significant*
	Public	3.17				
Course	IT-Related	3.22	3391.5	-0.7323	0.4654	not significant
	Non-IT	3.31				
Grade in Mathematics	Above Ave	3.42	7.1988 (H-value)		0.0273	significant*
	Average	3.16				
	Below Ave	3.26				

*Significant at p-value less than 0.05.

Data showed no valuable differences in the level of readiness of the respondents in terms of the OLRS dimension, learner control when grouped according to profile variables gender (p=0.6031) and course in college (p=0.4654). These findings are noted to be similar to the results of the past studies conducted that gender (Hung et. al, 2010; Gacrama et. al, 2019; Chung, et. al, 2020; Estira, 2020; Oducado, 2021) and course in college (Rafique et. al, 2021) revealed no substantial differences in their level of readiness. However, the respondents when grouped according to school type graduated and grade in mathematics significantly differ in their readiness in online learning in terms of learner control, with p-values of 0.0385 and 0.0273, respectively. It can be further gleaned from Table 8 that the respondents who graduated from private schools have higher mean score in learner control than those who came from the public schools. Similarly, the respondents who obtained the above average grade in mathematics have the highest mean score as to learner control but those with below average grade have higher mean score than those with average grade in mathematics.

Learner control focused on online learners' control over their learning (control that manifested itself as repeating or skipping some content) and on efforts by online learners to direct their own learning with maximum freedom (Hung et al., 2010). This has become a critical component of research and practice in e-learning in particular, with the idea that learner control may hold part of the key to how e-learning might offer advantages over more traditional face-to-face learning (Fisher et al., 2017). Online learning environments allow learners to control their own learning by choosing the most appropriate learning process and steps for their best learning (Brown et al., 2016; Alqurashi, 2016; Fisher et al., 2017; Jung et al., 2019). Learner control aids learning because it helps learners develop and improve their skills regarding self-regulated learning and customize their personalized instruction to meet their goals, needs, and preferences (Scheiter, 2014).

3.6 On Motivation for Learning of Respondents

Table 9.
Respondents' readiness as regard to motivation for learning dimension

Online Learning Readiness Dimension and Statements	Agree (percent)	Mean	Description	Standard Deviation
Motivation for learning		4.08	high	0.61
I have motivation to learn.	58%	3.54	moderately high	1.08
I am open to new ideas.	94%	4.43	high	0.66
I improve from my mistakes.	89%	4.26	high	0.70
I like to share my ideas with others.	80%	4.08	high	0.82

In the OLRS dimension, motivation for learning, out of the 200 respondents, almost everyone or 94 percent agreed that they are open to new ideas; 89 percent agreed that they improve from my mistakes; 80 percent agreed that they like to share their ideas with others; and 58 percent agreed that they have motivation to learn (Table 9). The standard deviations range from 0.66-1.08, relatively higher dispersion was noted in the response to the first statement. The overall response constitutes high level (4.08) of online learning readiness of the respondents in motivation for learning. Having intrinsic moti-

vation is an advantage for students learning in online platforms because they "had significant freedom to determine their own learning path" (Ryan and Deci, 2000 as cited in Hung, 2010).

Based on our observations, students showed their high motivation through active participation during the synchronous meetings and in asynchronous activities. Many of them posted questions in the chat box of the online learning platform and posed questions and clarifications directed to both their professors and peers.

Table 10.
Differences in respondents' readiness as regard to motivation for learning dimension

Profile Variables		Mean	U-Value	Z-Ratio	P-Value	Interpretation
Gender	Female	4.10	4338.0	0.6859	0.4902	not significant
	Male	4.03				
School Type Graduated	Private	4.07	4465.5	-0.2152	0.8259	not significant
	Public	4.08				
Course	IT-Related	4.03	3385.0	-0.7509	0.4533	not significant
	Non-IT	4.09				
Grade in Mathematics	Above Ave	4.16	1.9017(H-value)		0.3864	not significant
	Average	4.01				
	Below Ave	4.04				

Results of the investigations presented no statistical differences in the level of readiness of the respondents in terms of the OLRS dimension, motivation for learning, when grouped according to profile variables gender (p=0.4902), type of school where they completed their secondary education (p=0.8259), course in college (p=0.4533) and grade in mathematics (p=0.3864). These strengthen the previous research outcomes that gender (Hung et. al, 2010; Gacrama et. al, 2019; Chung, et. al, 2020; Estira, 2020; Oducado, 2021) and type of school where the respondents completed their secondary education (Estira, 2020) exhibited no considerable differences in their level of readiness.

Motivation for learning concentrated on online learners' learning attitudes such as being open with new ideas, having the tendency to improve from mistakes, and desiring to share new ideas (Hung et al., 2010). Learning motivation is a process that give rise to energy and direction for learning engagement (Taylor, 2021). The success of learning depends on whether or not the learners are motivated (Filgona et al., 2020). Student motivation to learn has been undervalued to date though it has been identified as an area influencing student success and retention at university (Edgar et al., 2019).

3.7 On Online Communication Self-Efficacy of Respondents

Table 11.
Respondents' readiness as regard to online communication self-efficacy dimension

Online Learning Readiness Dimension and Statements	Agree (percent)	Mean	Description	Standard Deviation
Online communication self-efficacy		3.27	moderately high	
I feel confident in using online tools (email, discussion board) to effectively communicate with others.	59%	3.63	moderately high	0.80
I feel confident in expressing myself (emotions and humor) through text.	53%	3.42	moderately high	1.04
I feel confident in posting questions in online discussions.	19%	2.75	moderately low	0.94

In the OLRS dimension, online communication self-efficacy, out of the 200 respondents, 59 percent agreed that they feel confident in using online tools (email, discussion board) to effectively communicate with others; 53 percent agreed that they feel confident in expressing myself (emotions and humor) through text; and 19 percent agreed that they feel confident in posting questions in online discussions (Table 11). The standard deviations range from 0.80-1.08, relatively higher dispersion was noted in the response to the second statement. The overall response constitutes moderately high level (3.27) of online learning readiness of the respondents in online communication self-efficacy. This level of readiness may be linked to the Philippine Statistics Authority report as of 2019 which revealed that 73.9 percent of Filipinos age 10 to 64 years old use the Internet for social media, and most of them are 15 to 24 years old (Mapa, 2020), the age group wherein the respondents belong. Moreover, the use of text or chat messaging and audio and video calls are common among the students of the university where this study was conducted.

Table 12.
Differences in respondents' readiness as regard to online communication self-efficacy dimension

Profile Variables		Mean	U-Value	Z-Ratio	P-Value	Interpretation
Gender	Female	3.22	4275.5	-0.8450	0.3953	not significant
	Male	3.34				
School Type Graduated	Private	3.34	3858.0	1.7712	0.0767	significant**
	Public	3.13				
Course	IT-Related	3.39	3248.5	1.1414	0.2543	not significant
	Non-IT	3.23				
Grade in Mathematics	Above Ave	3.16	2.9701(H-value)		0.2265	not significant
	Average	3.28				
	Below Ave	3.41				

*Significant at p-value less than 0.10.

Survey results disclosed no significant differences in the level of readiness of the respondents in terms of the OLRS dimension, online communication self-efficacy, when grouped according to profile variables gender (p=0.3953), type of school

where they completed their secondary education (p=0.0767), course in college (p=0.2543) and grade in mathematics (p=0.2265). These reinforce the outputs of the studies performed previously that gender (Hung et. al, 2010; Gacrama et. al, 2019; Chung, et. al, 2020; Estira, 2020; Oducado, 2021) and type of school where the respondents completed their secondary education (Gacrama et. al, 2019; Estira, 2020) showed no valuable differences in their level of readiness. However, the respondents when categorized as to whether they came from public or private schools differ significantly. Respondents from private schools seem to be more prepared in online communication self-efficacy as indicated by the mean score higher than that of respondents from public secondary schools.

Online communication self-efficacy described learners' adaptability to the online setting through questioning, responding, commenting, and discussing (Hung et al., 2010). The online communication and interaction not only allow learners to express themselves but also increase opportunities for learners to receive recognition of successful from each other (Peechapol et al., 2018). Previous studies showed that online communication was claimed as an important factor influencing self-efficacy in online education (Lim et al., 2016; Reychav et al., 2016; Vayre & Vonthron, 2016; Cho & Cho, 2017). Considering the significance of self-efficacy in online education, previous study concluded that there is a need to identify and understand these factors influencing participants' self-efficacy (Kundu, 2020).

3.8 On Correlation of respondents' readiness

Table 13.
Significance of correlations of respondents' readiness across five dimensions

Dimensions	CIS	SDL	LC	MFL	OCS
CIS	-	0.3498	0.3403	0.3387	0.4092
SDL	0.3498	-	0.6048	0.6286	0.4384
LC	0.3403	0.6048	-	0.4903	0.4388
MFL	0.3387	0.6286	0.4903	-	0.4610
OCS	0.4092	0.4384	0.4388	0.4610	-

The correlation values above have p-values less than 0.00001.
The results are all significant at $p < .05$.

Significant relationships in terms of the responses given by the respondents across five dimensions were observed. This can be seen from the correlation coefficient values displayed in Table 13. These figures have corresponding p-values of less than 0.00001, which denote significant correlation at 0.05 level.

These significant correlations across five dimensions indicate that increasing the level of readiness in one dimension will provide positive impact to other dimensions. Frequent exposure of students to computer and internet tasks in an online learning environment may enhance their confidence in managing their own learning as they are required to use online sources and produce digital outputs individually and collaboratively. Online learning has changed the context of self-direction because of "greater access to technology, personalized learning experiences, and access to information sources" (Sajna Jaleel.) Self-directed learning may lead to being acquainted with wider spectrum of online resources and strategies for learning which gives the students more freedom on how to monitor, evaluate and reset their own learning goals. Students who believe that they have the abilities using online sources and managing and controlling their own learning will likely become more interested to achieve in their academic endeavors. With the own confidence, direction, and interest towards online learning, students may tend to express themselves easily and communicate well with their professors and peers while learning amidst the pandemic.

4 Conclusion

Despite of the challenges of online learning with limited movement due to quarantine protocols in their localities, the students exhibited high level of motivation in learning. They displayed moderately high level of online learning readiness in self-directed learning, learner control online, and communication self-efficacy. The comparisons made with the universities located inside and outside the country showed the same patterns in the said three dimensions. Therefore, students have to be provided with more learning opportunities through student development programs preparing them for online learning in terms of these three dimensions. Online learning is becoming an essential part of the new normal in post-pandemic future of higher learning and demanding more advanced digital or online technologies.

The respondents' levels of online learning readiness differ significantly when grouped according to type of school where respondents completed their secondary education. This is specifically evident in the aforementioned three dimensions: self-directed learning, learner control online, and communication self-efficacy. Programs addressing their preparedness may consider their high school background.

Variations of the response in the three dimensions can be attributed to majority of the response of the students who experienced problems in managing time, directing own learning progress, posting questions in online discussions and also distracted by other online activities. Many of them who shared those experiences were graduates of public schools resulting to lower level of readiness in the three dimensions. While variations of the response in self-directed learning and learner control online, as to grades in mathematics, may directly be attributed to their level of achievements in the subject. Readiness and grades results revealed that those students who displayed higher level of readiness, got higher grades in mathematics.

Aiming to enhance the level of readiness of the respondents in online learning, the following three dimensions should be given full attention: self-directed learning, learner control, and communication self-efficacy. As disclosed in the relationships

of the level of readiness of respondents, enhancing the said three dimensions directly indicate positive correlation to respondents' level of readiness across five dimensions. In this time of uncertainties, faculty members shall guide students to become well-prepared for online learning by providing more opportunities to reflect and monitor their own learning progress, to decide on how to regulate web-based and digital activities with maximum learning, and express oneself and convey their own ideas. The high level of motivation of the students can be a good starting point for faculty members in helping them perform well in mathematics in an online learning environment.

With the development in addressing the COVID-19 pandemic, future research may be extended to preparations of students to blended learning wherein face-to-face and online modes are implemented.

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