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LEVEL OF TEACHERS' SELF-EFFICACY AND STUDENTS' COMPETENCIES IN USING ONLINE-BASED INSTRUCTION

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Abstract

This study assessed teachers' self-efficacy and students' competencies in online-based instruction in Claveria East District, Philippines. Teachers' self-efficacy was evaluated across dimensions like technological resource selection, virtual interaction, content migration, class alignment, and web-based structure. Data from 145 secondary school teachers (both public and private) were collected using a survey questionnaire with sections on personal/professional information, student competencies, teachers' self-efficacy, and continuance intention. Results indicated very high self-efficacy among teachers, average student competency levels, and strong intention to continue using online instruction. Recommendations include enhancing technology, supporting policies, employing diverse teaching strategies, and ensuring reliable internet and technical support to optimize online instruction effectiveness.

Keywords: *self-efficacy, online-based instruction, students' competencies, educational technology, continuance intention*

INTRODUCTION

The education sector is one of the most affected sectors by the adverse effects of the COVID-19 crisis. The International Association of Universities (2020) first reported that more than a billion students across the globe were affected by school interruptions and the crisis continues to trouble especially the vulnerable segment of learners. The World Bank (2020) has strongly cautioned authorities about the effects of decreased school attendance such as the permanent lack of knowledge and the dismal future financial prospect of the learners. Amid these forbidding realities, the United Nations (2021) has recently encouraged countries to look at the brighter side of the situation, redirecting them to take the disruption as a rather good opportunity to renew education systems.

Online learning has been gaining ground and communication technologies have become an important tool for maintaining work continuity not only in school, but also among all fields of work. Regarding the educational field, these rapid and unexpected changes might have generated a series of difficulties in ensuring

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the effectiveness of both teachers and students (Rapanta et al., 2020). Iivari et al., (2020) stated that the COVID-19 pandemic has certainly motivated schools and education to participate in extensive technological transformation.

For the school year 2020-2021, the Department of Education (DepEd) officials considered using online platforms as an exigency plan for millions of students as COVID-19 crisis dragged on. "The ICT-based adjustments will have to be done as a main element for teaching and learning," DepEd Undersecretary Nepomoceno Malaluan said in virtual press conference.

Some teachers are concerned about the challenges of this kind of set up. DepEd officials acknowledge the limitations of online based education. But they said they must at least try to make it work.

It is true that the extensive school interruptions occurred in a period of fast technological transformation, however, it is not always the case for developing countries like the Philippines. The use of technology in education has been a regular issue in the country. Dotong et al. (2016) formerly reported that difficulties to educational technology integration in most developing countries including the Philippines are insufficient financial assistance, structural competence, human resources, management assistance, as well as behavioral factors.

Considering the vital role of the teachers, self-efficacy and continuance intention are the two personal factors that were instrumental toward the sustained use of technologies in the different modalities of distance teaching and learning (Lazar et al., 2020). Several studies investigated the correlation between self-efficacy and continuance intention as a part of some greater frameworks with several variables on a complex path of relationships. While Cahapay & Anoba (2021) focused on the "difference in the technological pedagogical knowledge (TPK) self-efficacy and continuance intention across selected teacher characteristics and then testing the relationship between these two constructs."

This school year 2022-2023, the Department of Education (DepEd) gradually shifted from the teaching modalities (modular, radio-based, tv-based, online-based) implemented during the past two years of the COVID-19 pandemic to the usual face-to-face teaching.

For the schools implemented online-based teaching, it is not clear whether the teachers are satisfied with the outcome resulted from using online platforms and tools for teaching. It is also important to know about their intention to use them in the future so that the institution will have a clearer vision regarding their huge investment or upgrade for the online platforms and tools.

The question arises whether online-based teaching is a progressive change in the education sector, or it is just an enforced application for the time being? Whether teachers are interested or satisfied with the different benefits of online classes or troubled, taking over the different issues. Another question is, can online platforms replace the traditional classrooms fully or partially even after COVID-19? Do the teachers have intention to use online-based teaching even during this post COVID-19 situation too? Are the teachers or institutions contented with the outcomes they expect from online teaching? These questions are essential to the implementation of various policies related to the education sector.

In consideration of the well-being of the learners affected by extreme climate conditions as they attend in-person classes, in April 2023, DepEd reiterates DepEd Order No. 037, s. 2022, titled "Guidelines on the Cancellation or Suspension of Classes and Work in Schools in the Event of Natural Disasters, Power Outages/Power Interruptions, and Other Calamities." DO 037, s. 2022 provides for the implementation of modular distance learning in the event of canceled or suspended classes due to natural disasters, calamities, and human-induced hazards to ensure learning continuity and that learning competencies and objectives are met.

In this regard, several schools in the country have implemented temporary distance learning due to extreme heat.

According to GTV's Balitanghali report, in Iloilo, 839 schools have returned to modular and online distance learning. Pangasinan Division 2, Antipolo City, Muntinlupa City and other school divisions also implemented blended learning due to extreme heat.

DepEd Central Luzon Regional Spokesperson Michelle Lacson said that about 403 schools in Central Luzon implemented blended learning modalities due to hot weather. Schools shifted to online or modular distance learning arrangements to ensure that the learning of the students is still continuous.

In relation to the above-mentioned situations and the possibility of the occurrence of another pandemic, it is still important to study how teachers implement distance learning modalities especially online-based distance learning.

Thus, this study determined the level of teachers' self-efficacy and students' competencies in using online-based instruction of secondary school teachers in Claveria district during the post COVID-19 setting.

Generally, this study aimed to measure the level of self-efficacy and continuance intention of secondary school teachers in using online-based learning. Specifically, it sought answers to the following questions:

1. What is the profile of the respondents in terms of:

a. Personal Profile

1.1. Sex

1.2. Age

1.3. Position

1.4. length of service

1.5. educational attainment

b. Professional Profile

1.6. online learning platforms used (e.g. Facebook Room, Google Classroom, Google Meet, Microsoft Teams, Moodle, Zoom, etc)

1.7. number of seminars attended for online teaching

1.8. type of support/help needed (e.g. mentor or peer support, virtual or online tech support or family member support)

2. What is the level of self-efficacy of the teachers in using online-based instruction in terms of selection of technological resources, virtual interaction, subject content migration, online class alignment, and web-based class structure?

3. Is there a significant relationship between the respondents' profile and their self-efficacy in using

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online-based instruction in distance teaching and learning?

METHODOLOGY

The study used descriptive-correlational research design. The descriptive method of research was used with the questionnaire as its main instrument in gathering the respondents' demographic profile, teachers' self-efficacy, and continuance intention in using online-based instruction and students' competencies. Correlational research was used in this study to describe the relationship between the respondents' profile and their self-efficacy in using online-based instruction and the relationship between the self-efficacy and continuance intention of the teachers in using online-based instruction in distance teaching and learning.

The respondents of this study were the teachers from the public and private secondary schools of Claveria, Cagayan. Complete enumeration sampling technique was used in determining the number of respondents in each school since the total number of teachers in the whole district is manageable.

Table 1. Distribution of respondents by school.

Name of Schools	Number of Respondents
Claveria Rural and Vocational School	31
Claveria School of Arts and Trades	76
Claveria National High School	11
Academy of Saint Joseph	27
Total	145

The survey questionnaire was the primary source of gathering data. It consists of four (4) parts: Part I gathered the personal and professional information of the respondents; Part II determined the level of mastery of the students' competencies in using online-based instruction; Part III measured the teachers' level of self-efficacy in using online-based instruction based on the Online Teaching Self-Efficacy Inventory developed by Gosselin (2009); Part IV determined the teachers' continuance intention in using online-based instruction which was adapted from Lazar et al. (2020). These questionnaires were chosen because they had already gone through validation but with some revisions to suit the workplace and environment of the respondents. Values for coefficient alphas for the Online Teaching Self-Efficacy Inventory Scales ranged from .84 to .95, each indicating satisfactory reliability. On the other hand, the continuance intention obtained an overall Cronbach alpha of .874 indicating a strong internal consistency.

Part II was rated based on the mastery level of the students where 88% – 100% describes as "Highly Mastered" and 0% - 61% as "Not Mastered". Parts III and IV were rated using the 5-point Likert scale where 1 describes as "Strongly Disagree" and 5 as "Strongly Agree".

The data were collected through a printed questionnaire and an online survey using Google Forms.

The data gathered from the different respondents, tallied, tabulated, computed, interpreted, and analyzed using the following statistical tools:

Frequency count and percentage distribution were used in analyzing the profile of the respondents.

Average mean was used to determine the teachers' level of self-efficacy, continuance intention, and students' competencies in using online-based instruction was described using the scoring guide below:

Average Mean	Verbal Interpretation	Transposition
4.50 – 5.00	Strongly Agree	Very High Level
3.50 – 4.49	Agree	High Level
2.50 – 3.49	Undecided	Neither High nor Low Level
1.50 – 2.49	Disagree	Low Level
1.00 – 1.49	Strongly Disagree	Very Low Level

The following scoring guide was used to determine the teachers' continuation intention in using online-based instruction:

Average Mean	Verbal Interpretation	Transposition
4.50 – 5.00	Strongly Agree	Very High Level
3.50 – 4.49	Agree	High Level
2.50 – 3.49	Undecided	Neither High nor Low Level
1.50 – 2.49	Disagree	Low Level
1.00 – 1.49	Strongly Disagree	Very Low Level

The following scoring guide was used to determine the mastery level of the students' competencies in using online-based instruction:

Average Mean	Verbal Interpretation	Transposition
88 - 100	Highly Mastered	Very High Level
75 - 87	Mastered	High Level
62 – 74	Nearly Mastered	Low Level
0 – 61	Not Mastered	Very Low Level

The Pearson's Product Moment Correlation (r) and the chi-square test of independence were used to test the following hypotheses: a) there is no significant relationship between the profile of the respondents and their self-efficacy in using online-based instruction in distance teaching and learning; b) there is no significant relationship between the profile of the respondents and their continuance intention in using online-based instruction in distance teaching and learning; c) there is no significant relationship between the teachers' self-efficacy and continuance intention of the teachers in using online-based instruction in distance teaching and learning; d) there is no significant relationship between the teachers' self-efficacy and the level of mastery of the students' competencies in using online-based instruction in distance teaching and learning; e) there is no significant relationship between the respondents' profile and the level of mastery of the students' competencies in using online-

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based instruction in distance teaching and learning; and f) there is no significant relationship between the continuance intention of the teachers in using online-based instruction and the level of mastery of the students' competencies in using online-based instruction in distance teaching and learning. These were further evaluated using the .01 and .05 level of significance.

RESULTS AND DISCUSSION

The results of this study reveal significant insights into the profile and the teachers' self-efficacy in using online-based instruction in distance teaching and learning

Profile of the Teachers

Personal Profile

The personal profile of the respondents was measured in terms of sex; age; teaching position; length of service; and educational attainment.

There are 145 respondents in this study. Table 2 presents the distribution of respondents according to sex with majority of the respondents constitutes 88 or 60.69% percent are females while 57 or 39.31% percent are males. These findings strongly prove that the secondary schools in Claveria East District are female dominated.

The distribution on the age of the respondents in Table 2 shows that out of 145 respondents, 52 or 35.86% belongs to the age bracket ranges from 31 to 40, 48 or 33.10% percent belongs to the age ranges from 21 to 30, 24 or 16.55% percent ages from 41 to 50, and 21 or 14.48 % percent ages from 51 and above. The average age in this distribution is 37.24, this means that the majority of the secondary school teachers in Claveria East District are still young in the service and in their mid - thirties.

The table also reveals the teaching position of the respondents, 44 or 30.34% percent are Teacher I, 24 or 16.55% percent are Teacher II, 58 or 40.00% are Teacher III, 13 or 8.97% percent are Master Teacher I, and 6 or 4.14% percent are Master Teacher II. This shows that most of the secondary school teachers in Claveria East District are in the Teacher III teaching position or rank.

As to respondents' length of service in teaching in terms of years, 52 or 35.86% have teaching service that ranges from 1 to 5 years, 45 or 31.03% taught for 6 to 10 years, 18 or 12.41% taught for 11 to 15 years, while 9 or 6.21% taught for 16 to 20 years, 12 or 8.28 % taught for 21 to 25 years, and 9 or 6.21% taught for 26 years and above. The average length of their service in the school is 9.93 years. This means that most of the respondents have at least ten years in the profession and are considered experienced teachers in the institution.

Table 2 also shows the educational attainment of the respondents which constitutes of 24 or 16.55% are still BS/AB graduates, 74 or 51.03% are with MA/MST units, 30 or 20.69% are MA/MST graduates, 7 or 4.83% are with Ph.D./Ed.D. units, and 10 or 6.90% are Doctoral graduates. Since most of the respondents are still with MA/MST units, this implies that most of them are still starting their graduate studies.

Table 2. Frequency and percentage distribution of the demographic profile of respondents

SEX	**Number of Teachers**	**Percentage**
Female	88	60.69
Male	57	39.31
AGE	**Number of Teachers**	**Percentage**
21- 30	48	33.10
31 – 40	52	35.86
41 – 50	24	16.55
51 and above	21	14.48
Average Age= 37.24		
TEACHING POSITION	**Number of Teachers**	**Percentage**
Master Teacher I	13	8.97
Master Teacher II	6	4.14
Teacher I	44	30.34
Teacher II	24	16.55
Teacher III	58	40.00
LENGTH OF TEACHING EXPERIENCE	**Number of Teachers**	**Percentage**
1 – 5 years	52	35.86
6 – 10 years	45	31.03
11 – 15 years	18	12.41
16 – 20 years	9	6.21
21 – 25 years	12	8.28
26 years and above	9	6.21
Average Length of Teaching Service = 9.93		
HIGHEST EDUCATIONAL ATTAINMENT	**Number of Teachers**	**Percentage**
BS/AB Graduate	24	16.55
with MA/MST units	74	51.03
MA/MST Graduate	30	20.69
with Ph.D./Ed.D. units	7	4.83
Ph.D./Ed.D. Graduate	10	6.90

Professional Profile of Respondents

The professional profile of the respondents was determined by the online learning platforms they used, number of seminars/webinars attended for online teaching, and type of support/help needed.

Teachers used a variety of Learning Management Systems (LMSs) or platforms in their online teaching. An LMS is a software application that gives instructors and students an interface to enhance online learning (Smith et al., 2018). Teachers used social media (e.g., Facebook, Messenger), video-conferencing tools (e.g., Zoom, Google Meet), online collaboration tools (e.g., Microsoft Teams and Google Classroom), as well as other platforms such as Moodle. The table below indicates the online learning platforms used by the respondents in their online teaching wherein most of them used the Google Meet which constitutes 135 or 93.10%, 116 or 80.00% used Zoom Cloud Meetings, 72 or 49.66% used

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Microsoft Teams, 58 or 40.00% used Google Classroom, 23 or 15.86% used Facebook Room, while 5 or 3.45% used Messenger, and 3 or 2.06% used Moodle. Based on the data, some respondents used two or more online learning platforms in their classes.

Based on the table below, 90 or 62.07% of the respondents attended 3 to 4 seminars/webinars related to online teaching, 32 or 22.07% attended 1 to 2 seminars, and 23 or 15.86% attended 5 or more seminars/webinars for online teaching. This means that most of the respondents have enough knowledge on how to apply online teaching in their respective classes.

Despite the seminars attended by the respondents, they still needed some support/help to discuss the skills, techniques, problems, and/or preparation for online teaching. The table below clearly reveals that most of the respondents needed mentor or peer support/help which composed of 135 or 95.17%, while 106 or 73.10% of them relied on virtual or online tech support, and 39 or 26.90% of them needed the support/help of a family member. The data shows that some respondents needed two or three support systems in using online teaching.

Table 3. Frequency and percentage distribution of the professional profile of respondents

Online Learning Platform Used	**Number Of Teachers**	**Percentage**
Facebook Room	23	15.86
Google Classroom	58	40.00
Microsoft Teams	72	49.66
Google Meet	135	93.10
Zoom	116	80.00
Messenger	5	3.45
Number Of Seminars or Webinars About Online Teaching Attended	**Number Of Teachers**	**Percentage**
1 -- 2	32	22.07
3 -- 4	90	62.07
5 - or more	23	15.86
Average Number of Seminars or Webinars About Online Teaching Attended = 4		
Type Of Support Needed/Help to Discuss the Skills, Techniques, Problems, And/or Preparation for Online Teaching	**Number Of Teachers**	**Percentage**
family member support	39	26.90
mentor or peer support	138	95.17
virtual or online tech support	106	73.10

Level of Self-Efficacy of the Teachers in Using Online-Based Instruction

Table 4 shows that the respondents demonstrate a "Very High Level" of self-efficacy in all the five (5) domains online-based instruction.

It can be noted that they have the highest level of online-based instruction self-efficacy in terms of selection of technological resources with a weighted mean of 4.62 described as "Very High Level" of self-efficacy. This implies that the respondents could identify and select the technological tools and resources that are best suited to their subject and students' capabilities in using online tools.

While virtual interaction had a weighted mean of 4.61 described as "Very High Level" of self-efficacy which means that the respondents showed themselves as "real" persons during online classes that draws attention and engagement among their students.

Moreover, subject content migration had a weighted mean of 4.52 described as "Very High Level" of self-efficacy which shows that the respondents successfully transferred the materials they used from face-to-face to online classes in digital media format using the appropriate technological resources.

Furthermore, web-based class structure had a weighted mean of 4.52 described as "Very High Level" of self-efficacy which means that the respondents believed they can construct and design online classes that complies with the Philippine Human Rights Commission guidelines and aligned with the institution's mission that can be used easily by students and other teachers.

Additionally, online class alignment had the lowest weighted mean of 4.50 which is still described as "Very High Level" of self-efficacy. This clearly shows that the respondents could essentially align learning objectives, assignments, activities, and assessment strategies with online classes.

Overall, the respondents show a "Very High Level" of self-efficacy in using online-based instruction with an overall weighted mean of 4.57. This result points to the positive perception of the respondents regarding their competence in understanding how technology use affects the instructional process (Cahapay & Anoba, 2021). This is also a concept to perceive competence (Fernet, et. al., 2012) and one of the most used predictors of motivational models for e-learning (Abdullah and Ward, 2016). Self-efficacy is an important dimension to understanding e-learning continuance intention in the workplace (Roca and Gagne, 2008).

Table 4. Summary assessment on the level of self-efficacy of the teachers in using online-based instruction.

Domains	**Average Mean**	**Descriptive Value**
A. Selection of technological resources	4.62	Very High Level
B. Virtual interaction	4.61	Very High Level
C. Subject content migration	4.59	Very High Level
D. Online class alignment	4.50	Very High Level
E. Web-based class structure	4.52	Very High Level
OVERALL AVERAGE MEAN	**4.57**	**Very High Level**

Correlation Between the Respondents' Profile and their Self-Efficacy in Using Online-based Instruction in Distance Teaching and Learning

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Several studies identified teacher beliefs and self-efficacy as a major obstacle to using technology in education (Ertmer & Ottenbteit-Leftwhich, 2010; Ertmer et al., 2014; Moore Hayes, 2011).

Table 5 presents the correlation result between the profile of the respondents and their self-efficacy in using online-based instruction in distance teaching and learning. The study proved whether a significant relationship exists between the profile of the respondents and their self-efficacy in using online-based instruction in distance teaching and learning.

The table shows that sex and highest educational attainment are not significantly related to the teachers' self-efficacy in using online-based instruction in distance teaching and learning. This is made evident by the level of significance of 0.05 with the computed Pearson r values of 0.019 and -0.064 respectively. This means that sex and highest educational attainment do not affect the teachers' self-efficacy in terms of selection of technological resources, virtual interaction, subject content migration, online class alignment, and web-based class structure.

Chang et al. (2011) and Horvitz et al. (2015) learned that there is a higher self-efficacy in online student engagement for female instructors. But the outcomes of this study did not corroborate either of these findings, as gender was not found to be a statistically significant predictor of online teaching self-efficacy.

On the other hand, there is a significant relationship between the age of the respondents and the teachers' self-efficacy in using online-based instruction in distance teaching and learning in the four (4) domains: virtual interaction (r = -0.175, p value = 0.080), subject content migration (r = -0.231, p value = 0.036), online class alignment (r = -0.168, p value = 0.043), and web-based class structure (r = -0.195, p value = 0.019). Age is also significantly related to self-efficacy as a whole at the 0.05 level of significance with a computed Pearson r value of -0.206 and p value of 0.013. This means that there is a higher level of self-efficacy among younger teachers than the older ones.

Various studies indicated no notable correlation between teachers' age, gender, and their levels of self-efficacy in the online learning environment (Mehdinezhad, 2012; Wee-Loon's, 2011; Robinia & Anderson, 2010). However, the result of this study reveals that age has a significant impact on the self-efficacy of teachers in using online-based instruction. It also proves the findings of Chang et al. (2011) that there is a significantly greater self-efficacy among younger teachers than older ones.

There is also a significant relationship between the position and the teachers' self-efficacy in using online-based instruction in distance teaching and learning in the three (3) domains: selection of technological resources (r = -0.212, p value = 0.010), virtual interaction (r = -0.242, p value = 0.003), and subject content migration (r = -0.207, p value = 0.013). Teaching position is significantly related to self-efficacy as a whole at the 0.05 level of significance with a computed Pearson r value of -0.211 and p value of 0.011. This implies that teachers with lower positions tend to have higher level of self-efficacy in using online-based instruction.

There is a significant relationship between the number of seminars/webinars (related to online-based instruction) attended by the respondents and the teachers' self-efficacy in using online-based instruction in distance teaching and learning in two (2) domains: highly significant with selection of technological resources (r = 0.265, p value = 0.001) at 0.01 level of significance, significant with virtual interaction (r = 0.182, p value = 0.029) . The number of seminars/webinars (related to online-based instruction) attended by the respondents is significantly related to self-efficacy. This is shown by the 0.05 level of significance with the Pearson r value of 0.190 and p value of 0.022. This means that teachers with various seminars/webinars attended have higher level of self-efficacy.

The length of service in teaching has a highly significant relationship with the teachers' self-efficacy in using online-based instruction in distance teaching and learning in two (2) domains: virtual interaction (r = -0.221, p value = 0.008) and subject content migration (r = -0.226, p value = 0.006) and has a significant relationship with the teachers' self-efficacy in using online-based instruction in distance teaching and learning in two (2) domains: online class alignment (r = -0.188, p value = 0.024), and web-based class structure (r = -0.199, p value = 0.016). The length of service in teaching has a highly significant relationship with the teachers' self-efficacy. This is unveiled at the 0.01 level of significance with the computed Pearson r value of -0.223 and p value of 0.007. This means that there is a higher level of self-efficacy among teachers that are new to the service.

Research shows that teacher self-efficacy is also related to years of teaching experience and the level of grade taught. It was revealed that teachers with more experience perceived themselves as highly efficient in teaching compared to those with less experience (Alhasni, 2017; Mehdinezhad, 2012; Chang et al., 2011; Infurna, 2016). However, the result of this study reveals that teachers with lesser experience believed that they are as highly efficient in using online-based instruction compared to those with more experience in teaching.

Table 5. Correlation Matrix between the Respondents' Profile and their Self-Efficacy in Using Online-based Instruction in Distance Teaching and Learning

Profile Variables		A. Selection of technological resources	B. Virtual interaction	C. Subject content migration	D. Online class alignment	E. Web-based class structure	Self-Efficacy as a Whole
Sex	Pearson -r	-0.019	0.021	0.064	-0.007	0.028	0.019
	P-value	0.819	0.799	0.447	0.937	0.738	0.818
Age	Pearson -r	-0.146	**-.175***	**-.231****	**-.168***	**-.195***	**-.206***
	P-value	0.080	**0.036**	**0.005**	**0.043**	**0.019**	**0.013**

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Position	Pearson -r	**-.212***	**-.242****	**-.207***	-0.144	-0.134	**-.211***
	P-value	**0.010**	**0.003**	**0.013**	0.085	0.109	**0.011**
Length of Teaching Service	Pearson -r	-0.152	**-.221****	**-.226****	**-.188***	**-.199***	**-.223****
	P-value	0.067	**0.008**	**0.006**	**0.024**	**0.016**	**0.007**
Highest Educational Attainment:	Pearson -r	-0.102	-0.122	-0.054	0.011	-0.016	-0.064
	P-value	0.223	0.143	0.515	0.895	0.849	0.443
Number of Seminars or Webinars about Online Teaching Attended	Pearson -r	**.265****	**.182***	0.145	0.119	0.134	**.190***
	P-value	**0.001**	**0.029**	0.082	0.154	0.107	**0.022**
***. Correlation is significant at the 0.05 level (SIGNIFICANT)**							
****. Correlation is significant at the 0.01 level (HIGHLY SIGNIFICANT)**							

Correlation Between the Respondents' Self-Efficacy and the Students' Competencies in Using Online-based Instruction in Distance Teaching and Learning

Table 6 displays the relationship between the five (5) domains of the respondents' self-efficacy and the level of percentage mastery of the students' competencies in using online-based instruction in distance teaching and learning for the past three (3) years.

Based on the table below, during S.Y. 2020-2021 selection of technological resources is significantly related to students' competencies at 0.05 level of significance with a computed Pearson r value of 0.163 and p value of 0.049. But it is no longer significantly related to students' competency during S.Y. 2021-2022 and S.Y. 2022-2023. This means that selection of technological resources has a positive impact on the students' competencies in the first year of using online-based instruction.

Virtual interaction has a highly significant relationship with the students' competencies at the 0.01 level of significance in the past three (3) school years with the computed Pearson r value 0.281, 0.272, and 0.298 respectively. This shows that virtual interaction positively affected the mastery of the students' competencies in the past three (3) school years.

Subject content migration is highly significant related to the students' competencies at the 0.01 level of significance in the past three (3) school years with the computed Pearson r value 0.237, 0.237, and 0.244 respectively. This implies that students' competencies were positively impacted by a high level of self-efficacy in terms of subject content migration in the past three (3) school years.

Online class alignment is highly significant related to the students' competencies at the 0.01 level of significance in the past three (3) school years with the computed Pearson r value 0.219, 0.229, and 0.261 respectively. This means that online class alignment has a positive effect in the mastery of the students' competencies for the past three (3) school years.

On the other hand, web-based class structure is not significantly related to the mastery of the students' competencies for the S.Y. 2020-2021 and S.Y. 2021-2022. But it is significantly related to the mastery of the students' competencies for the S.Y. 2022-2023 at the 0.05 level of significance with a Pearson r value of 0.207. This shows that web-based class structure only impacted the mastery of the students' competencies in the last school year of using online-based instruction.

Overall, the respondents' self-efficacy in using online-based instruction is highly significant related to the student competency for the past three (3) school years at 0.01 level of significance with a Pearson r value of 0.237, 0.233, and 0.257 respectively. This confirms that the research hypothesis is rejected. It says that teachers' high self-efficacy can potentially improve student competencies in online-based instruction.

Some studies have shown the importance of teachers' self-efficacy as the key factor of education quality and learning outcomes (Affouneh et al., 2020. Teachers' awareness of their self-efficacy can affect students' achievement (Lin, & Zheng, 2015), as teachers' self-efficacy influences their decisions in choosing learning activities inside the classroom (Sahertian & Soetjipto, 2011). DeCoito and Estaiteyeh (2022) also stated that teachers observed a positive impact on student competency in using online technology. Research has supported the idea that online digital resources can enhance classrooms and improve student learning (Recker et al., 2013).

Table 6. Correlation Matrix between the Respondents' Self-Efficacy and the Students' Competencies in Using Online-based Instruction in Distance Teaching and Learning

Domains		Percentage Mastery of the Students' Competencies in Using Online-Based Instruction for SY 2020-2021	Percentage Mastery of the Students' Competencies in Using Online-Based Instruction for SY 2021-2022	Percentage Mastery of the Students' Competencies in Using Online-Based Instruction for SY 2022-2023
A. Selection of technological resources	Pearson -r	**.163***	0.126	0.110
	P-value	**0.049**	0.131	0.190
B. Virtual interaction	Pearson -r	**.281****	**.272****	**.298****

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	P-value	**0.001**	**0.001**	**0.000**
C. Subject content migration	Pearson -r	**.237****	**.237****	**.244****
	P-value	**0.004**	**0.004**	**0.003**
D. Online class alignment	Pearson -r	**.219****	**.229****	**.261****
	P-value	**0.008**	**0.006**	**0.002**
E. Web-based class structure	Pearson -r	0.140	0.156	**.207***
	P-value	0.092	0.061	**0.013**
Self-Efficacy as a Whole	Pearson -r	**.237****	**.233****	**.257****
	P-value	**0.004**	**0.005**	**0.002**
***. Correlation is significant at the 0.05 level (SIGNIFICANT).**				
****. Correlation is significant at the 0.01 level (HIGHLY SIGNIFICANT).**				

Conclusions

This study determined the level of teachers' self-efficacy in using online-based instruction. The findings reveal that the teacher-respondents have a very high level of self-efficacy in using online-based instruction in terms of selection of technological resources, virtual interaction, subject content migration, online class alignment, and web-based class structure. Students' competencies are at the average level for the past three (3) school years wherein online-based instruction was applied. The teacher-respondents have a strong perception of their continuance intention to use online-based instruction in the future. Younger teachers, teachers in lower positions, teachers with lesser teaching service, and teachers with more seminars/webinars attended tend to have an optimistic outlook of their self-efficacy. Teachers in lower positions, teachers with lesser teaching service, and younger teachers have a positive continuance intention in using online-based instruction. Teachers with positively higher level of self-efficacy have a greater intention to continue using online-based instruction in a distance teaching-learning situation. Teachers with higher awareness of their self-efficacy in using online-based instruction can possibly bring a positive impact on the mastery of the student competencies in an online teaching environment.

Recommendations

Based on the findings, several recommendations are proposed to further enhance the use of online-based instruction. First, the Department of Education should continue to provide technological enhancement to teachers through seminars and hands-on training workshops focusing on online-based instruction. Second, the Department of Education should craft policies integrating online-based instruction in the continuing professional development programs of the department and be reflected in the School Improvement Plans (SIPs), Annual Improvement Plans (AIPs) in each school. Third, teachers should apply varied teaching strategies and engaging activities during their online classes to improve the mastery of the students' competencies. Fourth, schools should provide strong internet connection and give technical assistance to support teachers in using online-based instruction effectively.

Declaration of no conflict of interest

The author hereby declares no conflict of interest and this article is his original work.

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REFERENCES

1. Abdullah, F.; Ward, R. (2016**).** Developing a General Extended Technology Acceptance Model for E-Learning (GETAMEL) by analysing commonly used external factors. Comput. Hum. Behav. 56, 238–256.
2. Anderson, T. (2017). How communities of inquiry drive teaching and learning in the digital age. Contact North. https://tinyurl.com/y68789b9
3. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
4. Buchanan, T., Sainter, P., & Saunders, G. (2013). Factors affecting faculty use of learning technologies: implications for models of technology adoption. *Journal of Computing in Higher Education, 25*(1), 1-11. doi:10.1007/s12528-013-9066-6
5. Butler-Bowdon, T. (2017). *50 Psychology Classics: Your shortcut to the most important ideas on the mind, personality and human nature.* 2nd edition. Nicholas Brealey Publishing.
6. Cahapay, M. B. & Anoba, J. L. D. (2021). Technological pedagogical knowledge self-efficacy and continuance intention of Philippine teachers in remote education amid COVID-19 crisis. *Journal of Pedagogical Research, 5*(3), 68-79. https://doi.org/10.33902/JPR.2021370614
7. Chang, T. S., Lin, H. H., & Song, M. M. (2011). University faculty members' perceptions of their teaching efficacy. *Innovations in Education and Teaching International, 48*, 49–60. doi:10.1080/14703297.2010.543770
8. Cho, M-H., & Shen, D. (2013). Self-regulation in online learning. Distance Education, 34(3), 290-301. https://doi.org/10.1080/01587919.2013.835770
9. Corry, M., & Stella, J. (2018). Teacher self-efficacy in online education: A review of the literature. Research in Learning Technology, 26. https://doi.org/10.25304/rlt.v26.2047Bandura, A. (1977).

DOI: 10.5281/zenodo.12594076

Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191-215.
10. Davis, F.; Bagozzi, R.; Warshaw, P. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. Manag. Sci., 35, 982–1003.
11. Deci, E.L.; Ryan, R.M. (1980). The Empirical Exploration of Intrinsic Motivational Processes11Preparation of this chapter was facilitated by Research Grant MH 28600 from the National Institute of Mental Health to the first author. In Advances in Experimental Social Psychology; Berkowitz, L., Ed.; Academic Press: Cambridge, MA, USA; Volume 13, pp. 39–80.
12. Dotong, C.I., De Castro, E.L., Dolot, J.A., & Prenda, M.T.B. (2016). Barriers for educational technology integration in contemporary classroom environment. *Asia Pacific Journal of Education, Arts and Sciences, 3*(2), 13-20.
13. DeCoito, I., Estaiteyeh, M. Online teaching during the COVID-19 pandemic: exploring science/STEM teachers' curriculum and assessment practices in Canada. *Discip Interdscip Sci Educ Res* **4**, 8 (2022). https://doi.org/10.1186/s43031-022-00048-z
14. Ertmer, P. A., Ottenbreit-Leftwich, A. T., & Tondeur, J. (2014). Teachers' beliefs and uses of technology to support 21st-century teaching and learning. In H. Fives & M. G. Gill (Eds.), International handbook of research on teachers' beliefs (pp. 403-418). Routledge.
15. Fernet, C.; Guay, F.; Senécal, C.; Austin, S. (2012**).** Predicting intraindividual changes in teacher burnout: The role of perceived school environment and motivational factors. Teach. Teach. Educ. 28, 514–525.
16. Garrison, D. R., & Akyol, Z. (2013). The community of inquiry theoretical framework. In M. G. Moore (Ed.), Handbook of distance education (3rd ed., pp. 104-120). Routledge.
17. Ghita, C.M. (2019). Albert Bandura's theory in Psychology of Education. [Teoria lui Albert Bandura în Psihologia învat,arii, in Romanian]. In How Do Children and Adults Learn? [Cum Învat, *a* Copiiis, i Adult,ii?]; Panisoara, G., Ed.; Polirom: Iasi, Romania; pp. 54–67.
18. Guo, Z., Xiao, L., Van Toorn, C., Lai, Y., & Seo, C. (2016). Promoting online learners' continuance intention: An integrated flow framework. *Information & Management*, *53*(2), 279-295. https://doi.org/10.1016/j.im.2015.10.010
19. Han, M., Wu, J., Wang, Y., & Hong, M. (2018). A model and empirical study on the user's continuance intention in online China brand communities based on customer-perceived benefits. *Journal of Open Innovation: Technology, Market, and Complexity*, *4*(4), 46. https://doi.org/10.3390/joitmc4040046
20. Hooi, R.; Cho, H. (2017**).** Virtual world continuance intention. Telemat. Inform. 34, 1454–1464.
21. Horvitz, B. S., Beach, A. L., Anderson, M. L., & Xia, J. (2015). Examination of faculty self-efficacy related to online teaching. *Innovative Higher Education*, *40*, 305-316. doi:10.1007/s10755-014-9316-1
22. Iivari, N., Sharma, S., & Ventä-Olkkonen, L. (2020). Digital transformation of everyday life–How COVID-19 pandemic transformed the basic education of the young generation and why information management research should care. *International Journal of Information Management*, *55*, 102183. https://doi.org/10.1016/j.ijinfomgt.2020.102183
23. Jackson, B. L., & Jones, M. (2019). Where the rubber meets the road: Exploring the perceptions of in-service teachers in a virtual field experience. Journal of Research on Technology in Education, 51(1), 7-26. https://doi.org/10.1080/15391523.2018.1530622
24. Jasperson, J., Carter, P. E., & Zmud, R. W. (2005). A Comprehensive Conceptualization of Post-Adoptive Behaviours Associated with Information Technology Enabled Work Systems. MIS Quarterly, 29(3), 525-557.
25. Kim, B. (2010**).** An empirical investigation of mobile data service continuance: Incorporating the theory of planned behavior into the expectation–confirmation model. Expert Syst. Appl. 37, 7033–7039.
26. Klassen, R.M.; Chiu, M.M. Effects on Teachers' Self-Efficacy and Job Satisfaction: Teacher Gender, Years of Experience, and Job Stress. J. Educ. Psychol. **2010**, 102, 741–756.
27. Kennedy, K., & Archambault, L. (2012). Design and Development of Field Experiences in Online Learning Environments. Journal of Applied Instructional Design, 2(1), 35-49. https://doi.org/10.1177/0022487111433651
28. Kidd, T., Davis, T., & Larke, P. (2016). Experience, adoption, and technology: Exploring the phenomenological experiences of faculty involved in online teaching at one school of public health. *International Journal on E-Learning, 15*, 71-99. Retrieved from https://www.learntechlib.org/j/IJEL/
29. Lai, H. M., Hsiao, Y. L., & Hsieh, P. J. (2018). The role of motivation, ability, and opportunity in university teachers' continuance use intention for flipped teaching. *Computers & Education*, *124*, 37-50. https://doi.org/10.1016/j.compedu.2018.05.013
30. Lavrakas, P. J. (2008). *Encyclopedia of survey research methods* (Vols. 1-0). Sage Publications, Inc. https://doi.org/10.4135/9781412963947
31. Lazar, I., Panisoara, I., Panisoara, G., Chirca, R., & Ursu, A. (2020). Motivation and continuance intention towards online instruction among teachers during the COVID-19 pandemic: The mediating effect of burnout and technostress. *International Journal of Environmental Research and Public Health*, *17*(21), 8002. https://doi.org/10.3390/ijerph17218002
32. Lee, M. H., & Tsai, C. C. (2010). Exploring teachers' perceived self-efficacy and technological pedagogical content knowledge with respect to educational use of the World Wide Web. Instructional Science, 38(1), 1-21. https://doi.org/10.1007/s11251-008-9075-4
33. Lin, C. H., & Zheng, B. (2015). Teaching practices and teacher perceptions in online world language courses. Journal of Online Learning Research, 1(3), 275-303. https://www.learntechlib.org/primary/p/171055Leedy, P. D., & Ormrod, J. E. (2010). *Practical research planning and design* (9th ed.). Essex, United Kingdom: Pearson.
34. Mehdinezhad, V. (2012). Faculty members' understanding of teaching efficacy criteria and its relation to their characteristics. *International Journal of Instruction*, 5, 213–236. doi:10.3402/edui.v3i1.22013

DOI: 10.5281/zenodo.12594076

35. Morrison, G. R., Ross, S. M., Kalman, H. K., & Kemp, J. E. (2011). *Designing effective instruction* (6th ed.). Hoboken, NJ: John Wiley & Sons, Inc.
36. Moore-Hayes, C. (2011). Technology integration preparedness and its Influence on teacher-efficacy. Canadian Journal of Learning and Technology / La revue canadienne de l'apprentissage et de la technologie, 37(3). https://doi.org/10.21432/T2B597
37. Rapanta, C.; Botturi, L.; Goodyear, P.; Guàrdia, L.; Koole, M. (2020). Online University Teaching During and after the Covid-19 Crisis: Refocusing Teacher Presence and Learning Activity. Postdigit. Sci. Educ.
38. Rice, K. L. (2006). A comprehensive look at distance education in the K–12 context. Journal of Research on Technology in Education, 38(4), 425-448. https://doi.org/10.1080/15391523.2006.10782468
39. Roca, J.C.; Gagné, M. (2008**).** Understanding e-learning continuance intention in the workplace: A self-determination theory perspective. Comput. Hum. Behav. 24, 1585–1604.
40. Tang, J. T. E., Tang, T. I., & Chiang, C. H. (2014). Blog learning: effects of users' usefulness and efficiency towards continuance intention. *Behaviour & Information Technology*, *33*(1), 36-50. https://doi.org/10.1080/0144929X.2012.687772
41. Wang, L. Y. K., Lew, S. L., Lau, S. H., & Leow, M. C. (2019). Usability factors predicting continuance of intention to use cloud e-learning application. *Heliyon*, *5*(6), e01788. https://doi.org/10.1016/j.heliyon.2019.e01788
42. Wu, M. C., & Kuo, F. Y. (2008). An Empirical Investigation of Habitual Usage and Past Usage on Technology Acceptance Evaluations and Continuance Intention. SIGMIS Database, 39(4), 48-73.

DOI: 10.5281/zenodo.12594076