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RESEARCH ARTICLE

TEACHER'S READINESS IN TEACHING SCIENCE 9 BIOLOGY AMIDST THE PANDEMIC IN ISABELA, PHILIPPINES

*Jake B. Macarubbo

LPT – Bachelor of Science Education with Specialization in Biology with Certification in Teaching Senior High (earned at Philippine Normal University – North Luzon); Master of Arts in Teaching Biology (candidate at Saint Mary's University), Graduate Scholar of the Department of Science and Technology – Capacity Building Program for Science and Mathematics Education

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Corresponding author:
Jake B. Macarubbo

ABSTRACT

Background: With the changes in the education system all throughout the world brought by the pandemic, this study aims to identify the level of readiness of high school science teachers in teaching biology amidst the Covid19 Pandemic and determine how the science teachers could increase their preparedness in teaching during this critical times. **Objectives:** The objective of this research is to know the level of readiness of High School Teachers in Teaching Biology amidst the pandemic and suggest on how they could improve their preparedness during critical times. Methods: This research utilized a Quantitative method using a structured interview form administered through Google Forms. This form was divided into three parts, agreement, personal information and checklist proper. This study utilized both descriptive and inferential statistics in treating the data collected. **Results:** The respondents perceived that they are confidently ready to teach Science 9 biology amidst the pandemic. The respondents' mean score from all the parameters for readiness in on line teaching amidst the pandemic is 3.87 which indicate that they are ready for the alternative way of teaching. **Conclusions:** Online learning or virtual learning has gained popularity in science education. Teachers should be aware of their readiness in on line teaching and to develop their skills in order to help the learners to be developed academically even when faced in critical or challenging circumstances.

INTRODUCTION

The way of communication, the passing of information, and the expenditure of our time has changed drastically through the years because of the advancement of our technology. The era of online education started in the 21st century (Farid, 2014) (1). With the advent of computers and the Internet, technology has been infused in the educational space for many years and it has been proven to give enrichment of the learning process. The recent development in technology provides an overwhelming growth of distance learning in different countries which contributed to the acceleration of education for all. Distance education is defined as the online delivery of instructional content as well as associated support services to students in the absence of physical contact and can be consider as a primary way of teaching and learning (Dela Pena-Bandalaria, 2011) (2).

Online learning has been an alternative way of education for students across the world more predominantly during the Covid-19 Pandemic. With the situation during the pandemic, educational institutions are encouraged to seek additional platforms to continue in providing the quality education and it is possible through the online education or distance learning. The future is clear in education sector that technology will play a primary role in the future. As far as education is concern, teachers are the main assets of the teaching-learning process, where they are the one responsible in building the knowledge. Teaching online requires teachers to move beyond old models of pedagogy into new practices that are more facilitative (Palloff & Pratt, 2000) (3). In the online education, participants, which includes the teachers and the students need to pay attention to the development of a sense of community within their community in order for the teaching process to be successful.

For online education to be successful, several areas are focused which are; ensured access and familiarity with the technology in use, proper established guidelines and procedures and promoting collaborative learning. "Successful faculty in online learning environment can "think out of the box" and set aside the traditional teacher-centered instructional model". The changes from conventional teaching to online teaching require good preparation for faculty to adapt to the paradigm shift.(Shraim, 2012)(4). The DepEd strategy plan which emphasized the need to develop learning via its 5-year Information and Communication Technology for Education (ICT4E) aimed to integrate ICT into every school curricula develops programs, establish infra and come up with a system. While there is a strategic plan of the department one problem encountered by the department is the low student-computer and teacher-computer ratios that pose the biggest challenge to the program (Dela PenaBandalaria, 2011)(2). The Internet has been increasing teachers' access to a vast amount of resources in a multitude of formats, while concurrently decreasing their dependencies on print resources. Some of the resources are of high quality, but others are unorganized and unauthenticated (Shea & Pickett, 2006) (5), and searching and verifying the information resources poses a challenge to teachers already pressed for time. Within the context of this study, it focused on four aspects of readiness for their ability for online teaching: (1) classroom management, (2) class communication, (3) time management and (4)technical competence. Ability has reference to the capacity to successfully perform. Since measuring faculty's direct ability was not possible, we focused on their perception of their ability to teach online. Several challenges may occur during the implementation of distance learning in this pandemic and the success of this venture depends on how teachers will act bravely to face this challenges. This study focused on Teachers teaching Science 9 Biology. The application of technology to educational process will enhance and make it easier to transfer learning. If teachers are ready to teach no matter what challenge is present, they will truly be successful in helping learners in this hard trying times.

MATERIALS AND METHODS

Design: This research will utilize a quantitative method using interview technique as research design. This method fits the need because the researcher will be utilizing an experts' validated observation sheets and structured interview via checklist in gathering data about teacher's perception in their readiness in teaching grade 9 biological science during the pandemic.

Environment: The researcher chose to conduct the study in Isabela Province because the researcher wants to determine the level of readiness of teachers in teaching grade 9 biology through online.

Samples and Sapling Procedure: In the province of Isabela there are three cities and thirty-four municipalities; in each there are at least one public high school (Aurora, Alicia, Cauayan, and Naguilian) up to sixteen at most (Ilagan City). For better representation and a reliable data set, the researcher decided to get one school from each municipality and city with five and below number of public high schools; two for those who have six to ten public high schools; three for those who

have eleven and above. These schools were chosen through fish bowl technique.

Instrumentation: The Faculty Readiness to Teach Online (FRTO) instrument (Martin, Budhrani, & Wang, 2019) (6), was adopted by the researcher for the conduct of the study with some modifications. The course design section and course communication was made into classroom management section and class communication respectively to suit with the science teachers in the grade 9 level. The first part, agreement, shows a term about the confidentiality that the researcher will take in gathering and processing the information that they have provided. The second part is the personal information page, this part will get their name (optional), gender, age, school, educational background, experience with online teaching and if they are male/female. And the final part is the checklist proper. Furthermore, the instrument is made in Google Forms, and is therefore only available and accessible through the internet. This choice was made as a result of certain parameters to avoid contracting COVID-19 disease.

Treatment of Data: Descriptive statistics (means and standard deviations) are reported both at the item level, at the subscale level, and also by demographic factors. Average weighted mean was used in determining the interpretation based on the Likert rating scale used in the level of readiness in teaching science. Frequency and Percentage was used in the second problem which is the profile of the respondents. To obtain the significant difference between two variables T-test was used. The Shapiro-Wilk test for Normality is used to determine whether the data set is in normal distribution or not.

RESULTS

This research study aims to measure teachers perception on how important is on line teaching and their readiness to teach Science 9 through distance teaching amidst the Pandemic. This research utilized a quantitative research method using questionnaires and tools which are needed in collecting data. This study utilized both descriptive and inferential statistics in treating the data to be collected and in answering the problem of the research.

Table 1.Respondents' demographic profiles

	Variable	Frequency
Sex	Female	20(50%)
	Male	20(50%)
Rank	Bachelor degree	31 (77.5)
	Master degree	9 (22.5)
Years of Teaching	1-5 years	28 (70%)
	5-10 years	6 (15%)
	10-15 years	3 (7.5%)
	15-20 years	3 (7.5%)

The respondents perceived that they are confidently ready to teach Science 9 biology amidst the pandemic. Specifically the respondents are ready for classroom management in an on line class with a total of 3.88 mean from the 10 criterions under this parameter. On the other hand, the respondents are also ready for on line teaching in the parameter of Classroom communication with a total mean score of 3.92. For time management, the respondents also agreed that they are ready with the mean score of 3.85.

Table 2. Teachers' Readiness for Classroom management

Classroom Management	Female Mean	Male Mean
1.Create an online course orientation (e.g., introduction, getting started).	3.684210526	4.095238095
2.Write measurable learning objectives.	3.947368	4.142857
3.Design learning activities that provide students opportunities for interaction (e.g., discussion forums, wikis).	3.473684	4.142857
4.Organize instructional materials into modules or units	3.894737	4.190476
5.Create instructional videos (e.g., lecture video, demonstrations, and video tutorials).	3.315789	4.285714
6.Use different teaching methods in the online environment (e.g., brainstorming, collaborative activities, discussions, presentations).	3.631579	4
7.Create online quizzes and tests.	3.526316	4.047619
8.Create online assignments	3.684211	4.095238
9.I encourage self-directed learning by providing them clear objectives and goals for upcoming tasks and by providing individualized tasks.	3.736842	4.142857
10.Manage grades online	3.578947	4.047619

Table 3. Teachers' Readiness for Classroom communication

Class communication	Female	Male
1.Send announcements/email reminders to students.	4.315789474	4.523809
2.Create and moderate discussion forums.	3.526316	4.190476
3.Use email to communicate with the learners.	4.105263	4.571429
4.Provide feedback on assignments (e.g., 7 days from submission).	3.578947	4.47619
5.Use synchronous web-conferencing tools (e.g., Adobe Connect, Webex, Blackboard Collaborate, Skype)	3.315789	3.904762
6.Communicate expectations about student behavior.	3.421053	4.142857
7.Communicate compliance regarding academic integrity policies.	3.473684	4
8.Apply accessibility policies to accommodate student needs	3.473684	3.761905

Table 4. Teachers' Readiness for Time Management

| Time Management	Female	Male
1.Schedule weekly hours to facilitate the online course	3.842105263	4.095238095
2.Use features in learning management system in order to manage time (e.g., online grading, rubrics, SpeedGrader, calendar).	3.578947	4.190476
3.Use facilitation strategies to manage time spent on course (e.g., discussion board moderators, collective feedback, grading scales)	3.473684	4.047619
4.Spend weekly hours to grade assignments.	3.315789	4.095238
5.Allocate time to learn about new strategies or tools.	3.736842	4.142857

Table 5. Teachers' Readiness for Technical Competence

Technical Competence	Female	Male
1.Complete basic computer operations (e.g., creating and editing documents, managing files and folders)	3.947368421	4.523809524
2.Navigate within the course in the learning management system (e.g., Moodle, Canvas, Blackboard, etc.)	3.684211	4.190476
3.Use course roster in the learning management system to set up teams/groups.	3.421053	3.761905
4.Use online collaborative tools (e.g., Google Drive, Dropbox)	3.684211	3.857143
5.Create and edit videos (e.g., iMovie, Movie Maker, Kaltura)	3.315789	3.904762
6.Share open educational resources (e.g., learning websites, Web resources, games and simulations)	3.789474	4
7.Access online help desk/resources for assistance.	3.421053	4.142857

Table 6. Total Mean Values

Mean Values				Interpretation
	Male	Female	Mean	
Classroom anagement	4.14	3.61578947	3.87694236	Ready
Class communication	4.2	3.65131579	3.92387218	Ready
Time management	4.11	3.58947368	3.8518797	Ready
Technical competence	4.05	3.609023	3.831722	Ready
Total	4.125808	3.6164	3.871104	Ready

Decision rule: 1-1.50-Cannot do it, 1.51-2.50- Little readiness, 2.51-3.50-Moderately ready, 3.51-4.50-Ready, 4.51-5.00-Very ready.
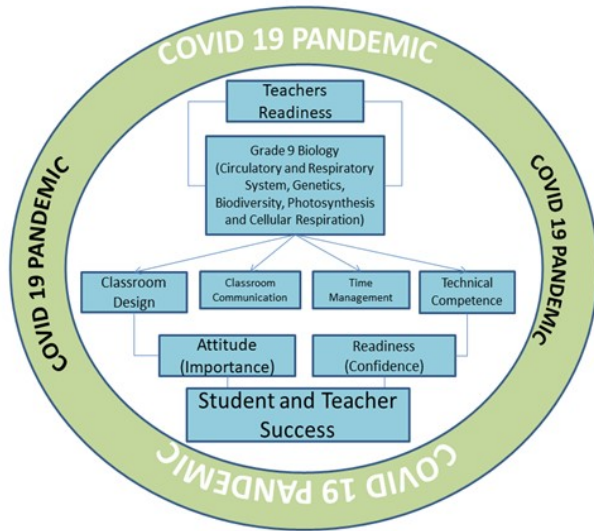
Figure 1. Conceptual Framework for Teachers Readiness in Teaching Science 9 Biology amidst the Pandemic

With technical competence, the respondents also perceived that they are ready with their total mean score of 3.831722. Overall, the respondents' mean score from all the parameters for readiness in on line teaching amidst the pandemic is 3.87 which indicates that they are ready for the alternative way of teaching. In the analysis of the data, it was found that the parameters for the classroom management, class communication and time management was distributed normally, while technical competence is not distributed normally. To the difference among the three normally distributed data, Independent T-test was administered, and it was revealed that there are no significant difference between the respondent's demographic profile and their readiness to teach online with the three parameters. On the other hand, Mann-Whitney Test was used to test the difference for the technical competence. It was revealed that there is a significant

DISCUSSION

This study aimed to know the level of readiness of teachers in teaching grade 9 science biology during the new normal for online teaching and to suggest practices which may improve their level of readiness. The data were gathered using Google forms in order to avoid the spread of the covid-19 virus. It was administered to Junior High school teachers in the province of Isabela. 20 males and 20 females were selected for the study. Among these respondents, 31 are graduates with Bachelor degree comprising 77.5%, while 9 of them are graduates in the Master's degree which 22.5 % of the total participants. On the other hand, they were group into 4 in their years of teaching. 28 taught for 1-5 years (70%), 6 for 5-10 years (15%), 3 for 10-15 years (7.5%), and also 3 for 15-20 years (7.5%), thus, majority of the teachers are have been teaching for few years only. Based on the data gathered the teachers perceived that they are ready to teach the science 9 Biology during the pandemic. The respondents perceived that they are ready to teach on line with regards to their (a) classroom management, (b) Classroom communication, (c) time management, and (d) Technical competence.

The data also reveals that there is a significant difference between the respondents' demographic profile which is sex and their readiness for on line teaching with the parameter of Technical Competency. The data showed that males perceived that their technical competence are higher than those with females. Studies show that men have greater perceived competence in digital cartography and online presentations, whereas women prefer to request personal tutorials to resolve doubts about technology and have greater perceived competence in corporate (Eastin & La Rose, 200) (7). The study also revealed that the parameters for the classroom management, class communication and time management were distributed normally, while the technical competence is not distributed normally. The difference among the three normally distributed data was administered using Independent T-test. It revealed that there is no significant difference between the respondents' demographic profile and their readiness to teach online with the three parameters. Overall, the respondents perceived that they are ready or more than ready to teach using the alternative online teaching during the pandemic. It shows that teachers are resilient and are ready to face challenges during critical times to cater the needs of the students or learners in the ever changing world that we live in.

CONCLUSION

The Philippines is one of the countries who have not yet fully embraced the use of the modern technology in education. More problems which may be more challenging than the Covid-19 pandemic may occur in the future. Whether they like it or not, teachers need to cope with challenges for them. This study had measured the readiness of the science 9 teachers for on line teaching amidst the pandemic, using 4 parameters. It was revealed that the respondents are ready to teach online amidst the pandemic. For the Institutions like the Department of Education who are the guide for the teachers, it is recommended that they should have programs that can help teachers be prepared for the future of on line teaching in the Philippines by way of seminars or webinars or maybe by giving guidebooks or references to the teachers. As well as the higher education sectors like universities, they should also strengthen their pre service education for the teachers so that they can be prepared for what will happen or possible circumstances on having online teachers.

CONFLICT OF INTEREST STATEMENT

Glossary of Abbreviations

CBPSME Capacity Building Program for Science and Mathematics Education
COVID-19 Corona Virus Disease 2019
DOST Department of Science and Technology

ICT4E Information and Communication Technology for Education

FRTO Faculty Readiness to Teach Online

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