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Perceived Readiness To Distance Learning And Digital Divide Among Selected Philippine Public Elementary Schools

Lilia Pombo Capangpangan

School Head, Nena Elementary School San Julian, Eastern Samar, Philippines

A R T I K E L I N F O

* Corresponding author;
liliapombo@gmail.com

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A B S T R A C T

The shift from the traditional instructional materials to a digital and more inclusive platform to education, will require educators to prepare for the massive transformation of the present curriculum. Hence, an investigation was conducted to examine the readiness to distance learning modalities, and factors associated with digital divides among 15 teachers in Nena Elementary School. The data was collected using a three-part survey questionnaire, and were analyzed via descriptive and inferential statistics with respect to the .05 threshold of significance. Findings revealed that the availability of teaching tools significantly predicts the increase of teachers' readiness on the delivery of instruction via distance learning modalities. Due to this, the researcher recommends among curriculum chief persons to look for ways to aid teachers in ensuring the availability of teaching tools appropriate in the digitalization of education in the new normal.

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INTRODUCTION

Continuity in education is a vital aspect that needs proper planning and implementation to meet the needs of a rapidly shifting and unpredictable global society. Telles-Langdon (2020) described the rapid change in the dynamics of the present educational system as an eye-opener among educators worldwide to defer themselves from usual "sage on the stage approach", and to give more focus on available technology-based infrastructure and digitalized approaches to instruction. True enough, the year 2020 forced almost all education sectors across the globe to equip classrooms and build teacher capability in the use of technology to encounter acceptance, sustainability, and scalability challenges.

The global pandemic revealed a large digital gap in the use of technology to promote contextually relevant teaching and learning activities. Cobo and Ciarrusta (2020) described *digital divide* as that which separates academic institutions offering general content provisions and those that can maximize learning by providing much more than access to educational materials, active feedback mechanisms, and quality learning experience. In an assessment conducted by Freeman (2012), revealed that learners who lack mobile devices for learning demonstrated a 30% minuscule increase in test scores. According to Flom (2013), teachers need to consider the precise boundary between the assigned task and the training goal accomplished by online Education in order to minimize the digital divide. The existence of the digital gap in different educational groups, among teachers and students, should be considered a concern since having access to information and the ability to communicate easily with others has shown to provide students with a better classroom experience.

Teachers' readiness to employ non-traditional modes of instruction may hamper the overall learning outcomes since the shift to blended instruction will require schools to provide adequate, relevant, and timely professional development to new and experienced teachers. Will (2020) described the challenges that educators experience once instruction turns to the digital world. In an assessment of Parks et al. (2016) among self-identified blended educators, findings revealed that the respondents still fell within the novice and emerging range for competency in blended instruction. Reports in television and social media showed some teachers needed to go to empty parking lots of the school, high areas in some mountain located schools just to access more reliable Internet connectivity. Also, some reports mentioned teachers who still resist adopting distance learning modalities due to preconceived barriers lack of skill to teach a topic, and the refusal to change lesson plans that have operated in classrooms for years (Martin et al., 2019; Omolara, 2015; & Pinantoan, 2013). These direct DepEd to reorganize its learning competencies via the Most Essential Learning Competencies (MELCs) to lessen teachers' burden (Rita, 2020).

In the Philippines, the Department of Education just recently released its learning continuity plan which mentioned three learning delivery modes namely: modular distance learning, online distance learning, blended learning, and homeschooling due to the magnitude of COVID cases, and lack of available vaccine in the country (Llego, 2020). In contrast, some countries especially China itself - the progenitor of the said virus, had already opened their schools via traditional face-to-face learning approach since January of 2020, due to their strict travel restrictions and control of the spread of the virus. In comparison, Thailand resumed face-to-face classes, with social distancing enforced through the installation of physical barriers to ensure physical distancing among the children throughout the school day (Pamintuan, 2020). In a pre-data collection made by the researcher, the majority of the parents in San Julian district, schools division of Eastern Samar, preferred modular distance education for their learners. This approach will challenge the financial capacity of the school and its MOOE in the reproduction of learning materials. In the same vein, the quality of learning will be undermined since less supervision, and feedback will be provided to the learners.

These conditions prodded the researcher to investigate the availability of teaching tools and digital infrastructure, and readiness of elementary teachers to lead distance education platforms in the opening of classes for the school year 2019-2020. Moreover, a correlation on these variables when grouped according to

teachers' profile was undertaken to divulge the need for technical assistance to teachers for the continued delivery of Education in the times of pandemic.

OBJECTIVES OF THE STUDY

This study examined the school's availability status of teaching tools and digital infrastructure, and the readiness on distance education platforms of elementary teachers in San Julian District, Schools Division of Eastern Samar for the school year 2020-2021, and to craft online-based in-service training based on the result of the study. Specifically, this study was directed with the following objective;

1. Describe the profile of respondents in terms of;
   1.1 Sex;
   1.2 Age; and
   1.3 Years in teaching,
2. Examine elementary teachers' digital divide based on the availability of the following;
   2.1 Teaching tools; and
   2.2 Digital Infrastructure,
3. Assess teachers' readiness on teaching routines, and learning assessment as indicators of distance learning platforms via
   3.1 Blended Instruction; and
   3.2 Modular Instruction,
4. Test the significant difference between respondents readiness on the two distance learning platforms in terms of;
   4.1 Teaching routines; and
   4.2 Learning assessment,
5. Investigate the predictors of teachers' readiness on distance education platforms in terms of the school's availability of teaching tools and digital infrastructure.

METHODOLOGY

This study applied a descriptive comparative approach in uncovering the significant difference of teachers' readiness to employ distance learning modalities in terms of learning routines and learning assessment. Also, a regression approach was conducted to test the availability of teaching tools and digital infrastructure as predictors of teachers' readiness to distance education platforms in preparation for the opening of classes for the school year 2020-2021 at Nena Elementary School.

This investigation covered a total of 60 respondents who were enjoined to fill –out the survey questionnaire. The respondents are regularly employed licensed professional teachers, handling elementary subjects, available at the time of the survey, and willing to be respondents of the study. These respondents came from various mono and multi-grade schools offering basic elementary education.

The three-part survey questionnaire was developed by the researcher and was validated among three experts; one an expert researcher, an elementary teacher who holds Master's degree in Education, and a public district supervisor using a five-point Likert scale for quality assurance of Waltz (1987). The data from the validation was tested through Exploratory Factor Analysis in the determination of factors/indicators for research objectives numbers 2 and 3. An over-all Cronbach alpha of 0.82, signified that the instrument is acceptable and valid to use for the present study.

In analyzing the data, descriptive and inferential analysis were utilized at 0.05 level of significance via Statistical Packages for Social Science. For the first and second objectives, frequency and percentage were used

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in describing the profile of the elementary teachers in terms of sex, age, and years in teaching, and the availability of teaching tools and digital infrastructure. For the third objective, the mean was used in assessing the readiness to employ distance learning modalities in terms of learning routines, and assessment. While Wilcoxon signed-rank test was utilized in testing if a significant difference in readiness exists between two modalities. For the last objective, to test the availability of teaching tools and digital infrastructure as predictors of teachers' readiness to distance education platforms, a linear regression was chosen. For ethical consideration, permission was sought from the school head. Copies of the survey questionnaire for the elementary were reproduced and distributed to them after asking their consent.

RESULT AND DISCUSSION

Profile of Elementary Teachers in Nena Elementary School

A total of fifteen (15) elementary teachers in Nena Elementary School participated in this study. The respondents' profile considered in the study include sex, age, and years in service. In terms of sex profile, a 100% turn-out of female teachers responded to the research questionnaire. A similar sex trend was observed in the findings of Usop *et al*. (2013) and Flores (2019). This confirms that teaching is still a female-dominated profession. In terms of age, 53.3% or 32 teachers have ages between 41 and 45 years old, the age group that is considered as prime working-age by CIA World Factbook (2018), while only four teachers are below 31 years old. The respondents' length of service as elementary teachers was also determined in the study; resulting to the discovery that, of the sixty (60) respondents, 53.3% of them have served for 10 to 20 years; 16 teachers have been teaching for 21 to 30 years; eight (8) or 13.3% are classroom teachers for the last one to ten years, and four (4) or 6.7% are continuously serving for more than thirty years.

It can be inferred from the research findings that elementary teachers are in their middle age, and are seasoned educators considering that they have been in the profession for a considerable period, which provides them the opportunity to harness their inner talents, and fully understand the relevance of primary education among the youth of today.

Table 1. Profile of The Respondents

Profile	Frequency	Percent
Sex		
Male	0	
Female	60	100
Age		
61 and above	0	0
51-60	16	26.7
41-50	32	53.3
31-40	8	13.3
Below 31	4	6.7
Length of service		
41 and above	0	0
31-40	4	6.7
21-30	16	26.7
10-20	32	53.3
Below 10	8	13.3

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Status on Digital Divide Among Elementary Teachers in Nena Elementary School

The status on digital divide as perceived by the respondents were grouped into; (1) availability of teaching tools, and (2) availability of digital infrastructure with five indicators each, as depicted in Table 2. In terms of availability of teaching tools, majority of the indicators were perceived to be not available namely; electronic libraries (93.23%), Electronic books and references (80%), and Electronic learning simulation applications and web-based teaching systems which comprise 60% of the respondents, respectively. On the other hand, 11 or 73.3% of the respondents perceived informative audio and video materials to be available for use on instruction. A similar finding on the rampant inadequacy of teaching tools was found in the study of Uwameiye (2016). Also, Sicilia's study (2005) divulged that most teachers difficulty in accessing computer-based educational tools due to unfamiliarity and gross inadequacy at school for instructional use.

In terms of the availability of digital infrastructure, all of the respondents perceived the following to be available for instruction, namely; smart cellular phones, table/personal computers, internet connectivity, and radio outlet, while 11 or 73.3% perceived TV-broadcasting station as a medium of instruction. This finding supported the work of Yambo and Tuitoek (2014) when they contended that teachers should be at the forefront of implementing ICT in schools. These findings imply the need for school administrators to cut a portion of the schools' MOOE and other means to purchase and acquire additional learning materials in response to the adaptation of new normal education.

Table 2. Respondents Perceived Digital Divide Based on The Availability of Teaching Tools and Digital Infrastructure

Indicators of digital divide	Available f (%)	Not available f (%)
Availability of teaching tools		
Uploaded informative audio and video materials	**44 (73.3%)**	16 (26.7%)
Electronic libraries	4 (6.7%)	**56 (93.23%)**
Web-based teaching systems (Schoology, Google Classroom, etc.)	24 (40%)	**36 (60%)**
Electronic books and references	12 (20%)	**48 (80%)**
Electronic learning simulation applications	24 (40%)	**36 (60%)**
Availability of digital infrastructure		
Smart cellular phones	**60 (100%)**	
Tablet/ Personal Computer	**60 (100%)**	
Internet Connectivity	**60 (100%)**	
Radio outlet	**60 (100%)**	
TV-broadcasting station	**44 (73.3%)**	16 (26.7%)

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Respondents Perceived Readiness on Learning Routines, and Learning Assessment as Indicators of Distance Learning Modalities

Table 3 discusses the readiness of elementary teachers in San Julian District, Schools Division of Eastern Samar in the delivery of instruction via distance learning modalities in terms of teaching routines and learning assessment.

The findings revealed higher perceived readiness in teaching routines thru Blended instruction ($\bar{x}$ = 3.73) against Modular instruction ($\bar{x}$ = 3.47). This can be attributed to the more participative nature of Blended learning via online and televised platforms. However, in terms of learning assessment, Modular instruction gained a higher mean score ($\bar{x}$ = 3.73) compared to Blended learning ($\bar{x}$ = 3.47). However, all these mean scores interpret high readiness among the respondents to deliver learning the time of the pandemic. This result is aligned with Gill et al.'s (2015) assertions among a large proportion of students who are more on an independent study with relying exclusively on self-paced courses and less collaboration.

Table 3. Respondents Perceived Readiness on Learning Routines and Learning Assessment

Distance learning modalities	Mean	Interpretation
On Blended learning		
On teaching routines	3.73	Highly ready
On learning assessment	3.47	Highly ready
On Modular Instruction		
On teaching routines	3.47	Highly ready
On learning assessment	3.73	Highly ready

Legend:
1.00-1.80 (Very low readiness)
1.90-2.60 (Low Readiness)
2.70-3.40 (Moderately ready)
3.50-4.20 (Highly ready)
4.30-5.00 (Very highly ready)

Wilcoxon signed-rank test significant difference between perceived readiness on distance learning modalities in terms of teaching routines and learning assessment

In examining whether there is a significant difference between the perceived readiness on Blended learning and Modular instruction as modalities in the normal in terms of teaching routines and learning assessment, Wilcoxon signed-rank test was employed at .05 level of significance since the two data sets came from related samples. Results from the analysis show no significant difference between the respondents' perceived readiness in teaching routines and learning assessment since the p-values are higher than the level of significance (p=.07). This implies that elementary teachers are equally ready to provide instruction in whatever option is required for them to implement in their respective classes. This finding supports the notions of Ertmer et al. (2012) on the ability of teachers to integrate digital technology to supplement and support the curriculum, facilitate teachers' work, and encourage student-centered learning.

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Table 4. Wilcoxon Signed-Rank Test Of Significant Difference Of Respondents' Perceived Readiness Between Blended Learning Approach And Modular Instruction In Terms Of Teaching Routines And Learning Assessment

Criterion variables	Predictive variables	Mean rank	p-value	Interpretation
Teaching routines	Blended Learning	3.24	0.07	Not significant
	Modular Instruction	3.01		
Learning assessment	Blended Learning	2.58	0.07	Not significant
	Modular Instruction	2.78		

df = 59, α = .05

Predictors of Respondents' Readiness On Distance Education Platforms

To predict respondents' readiness on distance education learning modalities in terms of profile and status on the digital divide, linear regression was utilized. Table 5 reveals that the variables (age, years in service, availability of teaching tools, and digital infrastructure) significantly predict and regresses teachers readiness on distance education platforms specifically on Blended instruction (R^2 = .661, p = .019) and Modular instruction (R^2 - .758, p = .004). These show that the accounted variables affect teachers' readiness on Blended learning by 66.1%, while around 75.8% impact was shown in Modular instruction. Moreover, the availability of teaching tools in both modalities is found to be a significant regressor, which means that the increase in the available tools will improve teachers' readiness by around 2.131 for Blended instruction, and 1.918 for modular instruction.

A similar result on the marginal effect of availability of teaching tools to perceived readiness was presented by Koo (2008). Meanwhile, the findings on the non-significance of years in services as a predictor opposes the findings of Al-Awidi and Aldhafeeri (2017). The research findings revealed that the more familiar the teachers are with technology, the readier they are for teaching in an online environment.

Table 5. Predictors Of Teachers' Readiness On Distance Education Platforms In Terms Of Respondents' Profile And Status On Digital Divide

Predictive Variables	Blended instruction			Modular instruction		
	β/R^2	p-value	Interpretation	β/R^2	p-value	Interpretation
Age	-.210	.837	Not significant	-.707	.343	Not significant
Years in service	.702	.570	Not significant	.618	.485	Not significant
Availability of teaching tools	2.131	.001	Significant	1.918	.000	Significant
Availability of digital infrastructure	-2.630	.259	Not significant	-2.024	.225	Not significant
Regression result	.661	.019	Significant	.758	.004	Significant

CONCLUSIONS

This study was conducted to examine the predictors of readiness of elementary teachers in the implementation of distance education amid the pandemic. Based on the findings of the study, it is concluded that the majority of elementary teachers in San Julian district, School Division of Eastern Samar are female, in their middle age, and have served as regular teachers in the Department of Education for 10 to 20 years. Their perceived digital divide showed the unavailability of relevant teaching tools such as electronic libraries, web-based teaching systems, electronic books, and simulation applications. Although, they are highly ready to provide continuity in education via blended learning and modular instruction. Moreover, results from the comparative non-parametric analysis showed no significant difference observed on the readiness of the respondents in the utilization of blended learning and modular instruction in terms of teaching routine and learning assessment. Finally, the grouped predictive variables consisting of age, years in service, and the availability of teaching tools and digital infrastructure all account huge impact on teachers' readiness to distance learning modalities. However, only the availability of teaching tools significantly predicts the increase of teachers' readiness on distance learning modalities.

From this, it is recommended to spare huge and massive financial support to teachers in terms of provision of teaching tools. School administrators should ensure the utilization of the said materials for the full implementation of distance education in the country. Likewise, the entire framework can be replicated to further validate the findings. Finally, the researcher recommends among curriculum chief persons to look for ways to aid teachers in ensuring the availability of teaching tools appropriate in the digitalization of education in the new normal.

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