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DIGITAL TRANSFORMATION AND READINESS OF PUBLIC ELEMENTARY SCHOOL TEACHERS IN THE DISTRICT OF SIGMA

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ABSTRACT

The study investigated the level of digital transformation of schools and degree of digital readiness of teachers in the District of Sigma. The respondents of the study were 174 randomly selected elementary school teachers in the District of Sigma. The study used the descriptive-correlational research design. Data were collected using a validated and reliability-tested researcher-made questionnaire. Statistical tools used to analyze and interpret data were frequency count, percentage, mean, t-test, and analysis of variance, and Pearson r. The results revealed that the level of digital transformation of schools was high and the degree of digital readiness of teachers was to a certain extent. There was no significant difference in the digital transformation of schools as perceived by the teachers when they were grouped according to gender, age, highest educational attainment, number of years in service and monthly income. Moreover, there was no significant difference the degree of digital readiness of teachers when they were grouped according to gender, age, highest educational attainment, number of years in service and monthly income. The digital transformation of schools was found to be significantly associated with the digital readiness of teachers. The result indicated that the more digitally ready are the teachers, the more they will utilize their digital abilities in their classes. Hence, the school needs to provide them with the needed facilities like equipment, connectivity and instructional materials. Digitally ready educators perceive technology for all of its innovative potential, rather than something they are required to do in a step-by-step manner.

Keywords*: Digital Transformation, Digital Readiness, Teachers*

1. Introduction

The ways of teaching and learning have undergone modifications through digital transformation, from combining and blending new technology that can be used in the classroom to keeping track of and appraising students' performance. Sklyarov et al. (2020) mentioned that modifying digital tools is frequently regarded as crucial for digital transformation; in any way, it is more connected to changes in mindset, how it is done, and how it is administered in a digital environment. Schools can design and adjust activities depending on present situations to assist teachers and students in raising their skills and readiness in the digital world, thereby opening up new avenues for learning and growth.

Teachers must prepare and acquire essential technical and pedagogical skills to change from traditional classroom instruction to a teaching environment that is digital to ensure maximum learning transfer. In making digital transformation a success in the school, the readiness and willingness of teachers to embrace technology must be relied heavily upon (Al-Awidi & Aldhafeeri, 2017). For Nguyen et al. (2022), teachers and educational administrators must thoroughly understand teachers' perceptions of digital transformation to make proper recommendations for effectively implementing the process.

Digital teaching and learning pertain to attaining educational objectives utilizing effective communication, digital literacy, high productivity, and inventive thinking (Qoura, 2020). Haleem et al. (2022) state that whereas conventional classroom teaching normally cannot deliver more engagement and direct assessment, digital education, on the other hand, has these beneficial circumstances. It was mentioned that the latest research on digital transformation has highlighted the four building blocks of digital education: autonomous learning, digital curriculum, digital delivery, and digital tools.

Digital transformation in education, according to Latifah et al. (2022), not only includes using digital tools for instruction but also needs the preparedness and participation of all interested parties, particularly educators tasked with a sudden shift in the learning system. Digital teaching and learning development have set forth many concerns for educators, specifically regarding speedy technological progress. Educators must be ready to utilize technology and incorporate it into learning content. Nguyen et al. (2022) indicate that in digital teaching transformation, educators must utilize technology to figure out issues and weigh in on learning activities. It is recommended that administrators design an in-depth course of action for digital transformation to prepare teachers to blend technology into their teaching. Al-Awidi & Aldhafeeri (2017) suggest that such a plan must support teachers in becoming confident in implementing the digital curriculum. Teachers' training is also necessary to achieve a digital curriculum.

As a reaction to the plague brought by Covid-19 and the clamor of physical distancing, some teachers in the District of Sigma adopted virtual teaching and learning aside from using modules. Later, when face-to- face classes were reintroduced, some teachers still provided instructions on unique instances online. With the transfer to online education as a supplement to the usual way of instruction, these teachers had to adjust the course content of the subject to be adept in online teaching strategies and, specifically, prepare the needed technological facilities, which include internet connectivity and video conferencing services when doing online classes. These actions are necessary before digital transformation can be implemented as a new style of teaching inside the campus. New advances and inventions in technology introduced changes in education hastening the digital transformation of schools. The gradual shift towards online platforms presents a new challenge to teachers and students. Hence, determining the digital transformation of schools and digital readiness of teachers would facilitate the assessment on how teaching and learning is delivered in an online setting. This investigation can help school officials understand the essentials needed in digital education and generate plans and strategies that may help attain this objective. Furthermore, this study can help teachers introduce indispensable changes during digital instruction to meet the needs of the students. With this, the students will be benefited as well for their educational needs in the online environment would be addressed through the school's digital transformation and the teacher's digital readiness.

This study was anchored on the Unified Theory of Acceptance and Use of Technology and Technology, Pedagogy, and Content Knowledge theories. These theories were selected as the framework of the study because they show that the school's digital transformation and the employment of digital technology both in the processes of teaching and of learning, require user acceptance and positive conduct and that behavioral intent determines the actual use of technology. Any digital technology or equipment would only be helpful in education unless the teacher or students embrace its full utilization, making it a part of their knowledge, beliefs, and values, and the users themselves must have sufficient skill to use such technology. Moreover, the schematic diagram outlines how all study variables (including all their components as indicated in the boxes) are described. Also, differences in the details of every dependent variable (i.e., equipment, connectivity, instructional materials, application, and technical platforms) are established using the components of the independent variable (i.e., gender, age, highest educational attainment, number of years in service and monthly income), hence line connections among boxes of the variables. The two directional arrows between the two dependent variables showed how significant the variables' correlation is to each other.

Figure 1

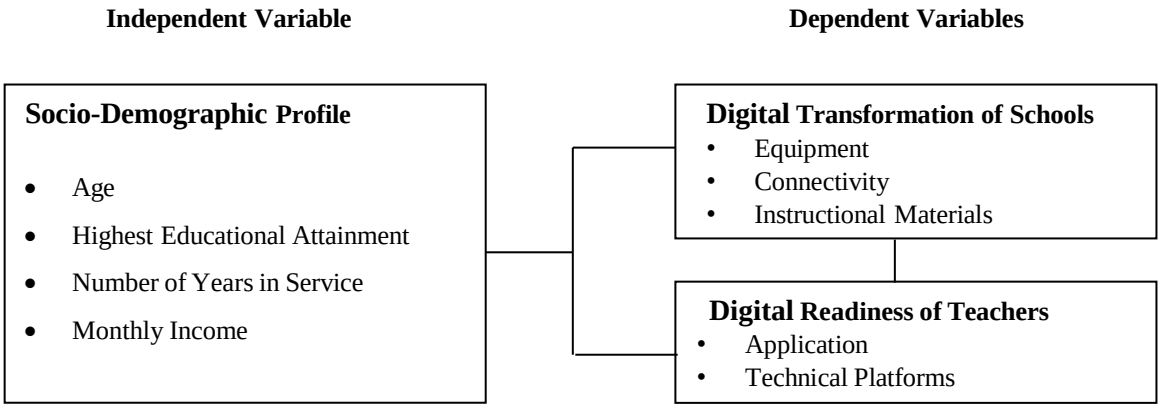

Figure 1. Schematic diagram showing the relationship among the socio-demographic profile, digital transformation of schools, and digital readiness of teachers.

2. Methods

The study focused on the digital transformation of schools and digital readiness of teachers. The study included tone hundred seventy-four (174) randomly selected elementary school teachers out of a population of two hundred seven (207) teachers from twenty-two (22) public elementary schools in the District of Sigma for the school year 2023-2024. The margin of error was set at 3.0 percent in determining the number of teacher respondents.

For digital transformation, the study considered three (3) components which included equipment, connectivity, and instructional materials. Moreover, for digital readiness, the study considered two (2) components which included application, and digital platforms. Data were collected using a researcher-made questionnaire. The researcher encountered difficulty in the retrieval of questionnaires because of the location of the schools and the busy schedules of the teachers. It took the researcher about one (1) month to finish the administration of the questionnaire. The study was conducted from November to December 2023. A 'researcher-made questionnaire' was used to gather the needed data consisting of three parts. The' statistical tools used to analyze the data were frequency count, percentage, mean, t-test, ANOVA and Pearson r. All statistical data were computer processed.

3. Results and Discussion

Level of Digital Transformation of Schools

The results on the level of digital transformation of school in the District of Sigma had a grand mean of 3.70 with verbal interpretation of "High" as shown in Table 1.

Table 1
Level of Digital Transformation of Schools as a Whole.

Indicators	Mean	Verbal Interpretation
Connectivity	3.76	High
Equipment	3.74	High
Instructional Materials	3.60	High
Grand Mean	**3.70**	**High**

When all the 174 respondents were taken as a whole, Table 1 presents that the level of digital transformation of schools in the District of Sigma had a mean of 3.70 and verbally interpreted as "high". Results indicate that the level of digital transformation in terms of connectivity was the highest of the three components with a mean score of 3.76 and verbally interpreted as "high" while the level of digital transformation in terms of equipment had a mean score of 3.74 and verbally interpreted as "high", and the level of digital transformation in terms of instructional materials had a mean score of 3.60 and verbally interpreted as "high". The high level of digital transformation of schools implies that schools are investing in digital technology and infrastructure in providing a conducive environment for students. All over the world, virtual instruction and learning is fast becoming popular and so is the notion of IT-enabled education in schools. If a school does not invest in digital technology, its students might be left behind and would be in a disadvantaged position when competing with students from schools that are heavily invested in digital infrastructure especially as several years ago, digital classrooms have increased distinction. Through high level digital transformation, schools could provide technology-enabled classes that nurture prospects for teaching and learning by assimilating learning technology such as computers, specific applications, audio-visual capabilities and many others. Schools in the District of Sigma are committed to gradually transform the delivery educational content to their students though investments in digital equipment, internet connectivity and production of instructional materials. This may be because it is a responsibility of the school to provide the best possible learning environment to its students to make them more productive citizens in the future. The results of the study supports the findings of Costa et al (2021) that an effective digital transformation necessitates educational institutions to intensify their digital capability levels, instituting the essential values, guidelines, structure as well as digital capability of learners and teachers to support the effective integration of technology in teaching and learning practices;" of Latifah et al. (2022) that schools and educators must be ready to utilize technology and incorporate it into learning content; of Gallaire (2014) that the world is slowly becoming more competitive and interconnected due to the steady progress in human society; and of Nguyen et al. (2022) that in digital teaching transformation, educators must utilize technology to figure out issues and weigh in on learning activities.

Degree of Transposable Identity of Teachers

The results on the degree of digital readiness of elementary teachers in the District of Sigma had a grand mean of 3.15 with verbal interpretation of "to a certain extent" as shown in Table 2.

Table 2
Degree of Digital Readiness of Teachers as a Whole.

Indicators	Mean	Verbal Interpretation
Application	3.29	To a Certain Extent
Technical Platforms	2.90	To a Certain Extent
Grand Mean	**3.15**	**To a Certain Extent**

When all the 174 respondents were taken as a whole, Table 3 shows that the degree of digital readiness of elementary teachers in the District of Sigma had a mean of 3.15 with a verbal interpretation of "to a certain extent". Results show that the degree of digital readiness concerning application had a mean score of 3.29 with verbal interpretation of "to a certain extent" was higher than technical platform with a mean score of 2.90 and verbally interpreted as "to a certain extent". The results imply that teachers in general are not yet fully confident in their skills to initiate online sessions, access the internet and share resources online. Moreover, they have some doubts about their ability to identify the credibility of information online and protect personal data. Moreover, they do not consider themselves fully adept in the use of digital tools in the course carrying out online tasks. Although the schools and the teachers embrace digital technology and innovation in education, teachers are still unsure of whether their abilities are adequate to fully utilize digital technology to its maximum potential. This can be attributed to the fact that digital readiness which includes technology adoption is based on the teachers' digital abilities and confidence in technology, which could impact their utilization of digital tools as well as their access to these digital tools. This study's findings support the results of Msila (2015) that educators' enthusiasm for assimilating technology and gaining familiarity with educational technology hinge on their cognizance, familiarity of use, perceptions, and outlooks; of Al-Awidi & Aldhafeeri (2017) that educators are prepared in carrying out a digital curriculum both technically and pedagogically and the factors that hold back their readiness are related to knowledge, technical support, skills, limited time, and infrastructure; of Buabeng-

Andoh (2012) that areas that prevent educators from implementing technology in their teaching are teacher self-confidence, teachers' technology skills, lack of accessibility to digital technology, pedagogical teacher training, the organizational framework of the educational system, and a restricted curriculum; and of Balajadia (2015) that the readiness of educators in using ICT in instruction is limited by the lack of facilities.

Differences in the Level of Digital Transformation of Schools and Some Variables

To determine the significant differences in the level of digital transformation of schools and the digital readiness of teachers, data on their socio demographic profile is shown in Table 3.

Table 3
Socio demographic Profile of the Respondents.

Profile		Frequency	Percent (%)
Sex			
	Male	29	16.7
	Female	145	83.3
Total		**174**	**100.0**
Age			
	30 years old and below	29	16.7
	31-60 years old	142	81.6
	61 years old and above	3	1.7
Total		**174**	**100.0**
Highest Educational Attainment			
	Bachelor's Degree	30	17.2
	Bachelor's Degree With Masteral Units	103	59.2
	Master's Degree	31	17.8
	Master's Degree With Doctoral Units	9	5.2
	Doctoral Degree	1	0.6
Total		**174**	**100.0**
Number of Years in Service			
	Less than 5 years	23	13.2
	6 – 10 years	61	35.1
	11 – 15 years	56	32.2
	16 – 20 years	25	14.4
	More than 20 years	9	5.2
Total		**174**	**100.0**
Monthly Income			
	Php21,000 – Php40,000	157	90.2
	Php41,000 – Php60,000	16	9.2
	Php61,000 – Php80,000	1	0.6
Total		**174**	**100.0**

Data reveal that majority of the participant-teachers were females, belong to age between 31-60 years old, have a bachelor's degree with masteral units, have been in the teaching profession between 6 to 15 years, and have a monthly income between Php21,000 to Php40,000.

Table 4 shows the distribution of different socio demographic profile of the respondents in the level of digital transformation of schools with their significant values, t/F values, and corresponding probability.

Table 4
Differences in the Level of Relationship Management of Teachers and Some Variables.

Profile	f/t-Value	Significant Value	Probability
Gender	1.761	0.080	n.s.
Age	2.174	0.117	n.s.
Highest Educational Attainment	1.095	0.361	n.s.
Number of Years in Service	1.180	0.321	n.s.
Monthly Income	0.966	0.383	n.s.

The results in Table 4 revealed that the level of digital transformation of schools as perceived by its teachers did not significantly differ when the teachers were categorized in terms of gender, age, highest educational attainment, number of years in service and monthly income. Therefore, the null hypothesis which states that there is no significant difference in the level of digital transformation of schools as perceived by teachers when they were categorized in terms of gender, age, highest educational attainment, number of years in service and monthly income is accepted. The results of the study is similar to the findings of Öngören (2021) that the level of digital literacy prospective teachers did not differ according to gender; of Gümüş and Kukul (2023) that male and female teachers did not significantly differ in their scores on digital competence; and of Ventayen (2019) that teachers do not significantly differ in their readiness with online teaching and learning when they are classified in terms of rank. Meanwhile, the results contradict the findings of Althubaiti et al (2022) that age is negatively associated with computer anxiety and positively associated with digital readiness and that male and female students significantly differ in their conduct of sharing information and usage of social media; of Abella and Dela Rosa (2023) that digital literacy is negatively correlated with sex and age; of Zakharov et al. (2021) that the digital proficiency of teachers is affected by age; of Fernandez-Cruz & Fernandez-Diaz (2016) that educators who are older and with long experience in teaching happened to have a less competency in information technology than those who are younger and with less experience; of Gümüş and Kukul (2023) that the teachers' digital competence scale and factors differed according to age groups; of Werfhorst et al (2020) that females have the tendency to utilize information technology for learning purposes more frequently than boys; and of Onyishi et al. (2012) that in relation to digital literacy and technology skills, females significantly lagged male peers in computer proficiency.

Differences in the Degree of Digital Readiness of Teachers and Some variables

The distribution of different socio demographic profile of the respondents in the degree of digital readiness of teachers with their significant values, t/F values, and corresponding probability is shown in Table 5.

Table 5
Differences in the Degree of Digital Readiness of Teachers and Some Variables.

Profile	f/t-Value	Significant Value	Probability
Gender	1.634	0.104	n.s.
Age	2.324	0.101	n.s.
Highest Educational Attainment	1.270	0.284	n.s.
Number of Years in Service	1.674	0.158	n.s.
Monthly Income	0.522	0.594	n.s.

As shown in the table, the degree of digital readiness of elementary teachers did not significantly differ in when they were categorized in terms of gender, age, highest educational attainment, number of years in service and monthly income. Therefore, the null hypothesis which states that there is no significant difference in the degree of digital readiness of public elementary school teachers when they were grouped according to gender, age, highest educational attainment, number of years in service and monthly income is accepted. The results of the study back the findings of Webb et al (2021) that no significant difference in scores for males and females was found in their preparedness to teach in an online environment; and of Ventayen (2019) that the readiness of the teachers with online teaching and learning did not significantly differ across their profile in

terms of sex, age, level of education, years of teaching and rank. Meanwhile, the findings contradict that of Al-Awidi and Aldhafeeri (2017) that there was significant difference in the readiness to implement the digital curriculum among beginning teachers, for teachers with some experience, for the experienced teachers, and for highly experienced teachers.

Relationship between the Level of Digital Transformation and the Degree of Digital Readiness of Teachers

The relationship between the level of digital transformation and the degree of digital readiness of teachers in Sigma is shown in Table 6.

Table 6
Relationship between the Level of Relationship Management and the Degree of Transposable Identity of Teachers.

Variable	N	Pearson's r	Significance Value	Probability
Digital Transformation Digital Readiness	174	0.894	0.000	s.

As shown in the table, the level of digital transformation is significantly related to the degree of digital readiness of teachers and vice versa. The Pearson r value of 0.894 had a significant value of 0.000 which was lower than 0.05 alpha. Based on the computed values, the null hypothesis which states that there is no significant relationship between the level of digital transformation and the degree of digital readiness of public elementary school teachers is rejected. The results imply that digital transformation is significantly associated to digital readiness. The higher the level of digital transformation of public elementary schools can result to a higher degree of digital readiness among teachers. Ultimately, a low level of digital transformation of public elementary schools can result to a lower degree of digital readiness among teachers. The results of the study are similar to the findings of Öngören (2021) that digital literacy and the preparedness levels of forthcoming teachers are moderately related; of Abella and Dela Rosa (2023) that attitude is associated with the overall digital proficiency of teachers; of Nueva (2019) that the outlook of teachers toward technology is positive; and of Paciente (2022) that teachers have a high positive perception toward information technology. As schools undergo digital transformation, it is just but proper that teachers should also be digitally prepared so as to ensure that the digital infrastructure, equipment and devices invested by the school could be properly utilized by the teachers and students. Digital transformation goes hand in hand with digital readiness. The more digitally ready are the teachers, the more they will utilize their digital abilities in their classes. Hence, the school need to provide them with the needed facilities like equipment, connectivity and instructional materials. Digitally ready educators perceive technology for all of its innovative potential, rather than something they are required to do in a step-by-step manner. Digital readiness does not entail that educators turn into experts, but it does necessitate that they recognize the digital tools that can unravel their deeper teaching potential.

4. Conclusions and Implications

Based on the results of the investigation, the following conclusions were derived: The schools exhibit notable level of digital transformation where teachers and students have access to school facilities, digital devices, internet connectivity, and skills to support optimal learning. The schools are slowly investing in information and communication technologies like digital learning devices and internet connection to cater to the ever-changing needs of their students and teachers and to meet their teaching and learning goals. The teachers demonstrate an average degree of digital readiness that enables them to a certain extent utilize digital tools and technologies inside their classrooms. They are familiar in accessing the internet, search and look for learning materials for their students, manage and revise materials they gathered online; involve in virtual conferences, and participate in online information and communication networks. The perception of teachers on the digital transformation of schools remain notable regardless of their gender, age, highest educational attainment, number of years in service and monthly income. The teacher exhibit average digital readiness regardless of their gender,

age, highest educational attainment, number of years in service and monthly income. The notable digital transformation of schools correlates to the digital readiness of teachers. The school stakeholders spearheaded by the principal could design and implement a program that would update teachers on new learning strategies on the utilization of digital technologies and on making digital materials that would encourage active participation of students. School officials should be resourceful and creative to source out funds for the procurement of ICT equipment for the school like creating a fundraising campaign with the cooperation of the Parent-Teacher Association or scout for donors and sponsors from alumni, community, government agencies, NGOs, etc. The major intention of this investigation was to cover and ascertain only the digital transformation of elementary schools in the District of Sigma as a whole and in terms of equipment, connectivity, and instructional materials, and the degree of digital readiness of elementary teachers in the District of Sigma focusing mainly on application and technical platforms. The study sought to uncover the significant difference in the level of digital transformation and the degree of digital readiness of the respondents when categorized in terms of gender, age, highest educational attainment, number of years in service, and monthly income. Furthermore, the study also determined the significant relationship between the level of digital transformation and the degree of digital readiness of public elementary school teachers in the District of Sigma.

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