The Mediating Effect of 21st Century Skills on the Relationship between Digital Literacy and Teaching Performance

Resyn Faye C. Cortez[1] , Oliver Ponsades[2]

Department of Education[1] ,

University of Mindanao[2]

Carmen, Davao del Norte, Philippines[1]

ABSTRACT

In the rapidly evolving landscape of education, the integration of technology has become pivotal, emphasizing the significance of both digital literacy skills and 21st century skills for educators. This study aims to investigate the mediating role of 21st century skills in the association between digital literacy skills and teaching performance. Drawing on a theoretical framework encompassing digital literacy, 21st century skills, and teaching performance, a quantitative research approach was employed. Data was collected from a diverse sample of educators. The research study purposely identified 300 senior high school students who are enrolled in the 2 identified national high schools under the division of Panabo City, Davao Region. The results showed that even though digital literacy skills, teaching performance, and 21st century skills got high/very high ratings, teachers must enhance their information and data literacy skills, digital content creation skills, and problem-solving skills. This study revealed that there is no significant relationship among the variables since the correlation is significant at the 0.01 level (2- tailed). Using the Sobel test, the result further indicates that there is insufficient evidence to conclude that there are significant effects of the moderating variable on teaching performance. Moreover, the study showed that there is no significant association between the independent variable to the teaching performance thus, there is no direct effect of these variables. Lastly, there is not enough evidence to conclude there are significant total effects of literacy skills on teaching performance thus, there is no indirect effect of digital literacy skills on teaching performance.

Keywords: Technology and Livelihood Education, Digital Literacy Skills, Teaching Performance, 21st Century Skills, Teachers, Mediating Effect, Philippines.

INTRODUCTION

Teachers' performance is a demonstration of the work they have done while performing their roles as qualified educators (Kanya et al., 2021). The pandemic caused by the COVID-19 disease is leaving devastating consequences and is causing the use of ICT to have gone from being one more methodological resource to a necessary solution so that the teaching and learning process is not interrupted (Naresh, 2020). The intricacies of the work coupled with the demanding needs have posed challenges to the teacher's performance including teachers' minimum level of competencies in digital literacy skills and 21st-century skills (Pa-alisbo, 2017). In addition, a survey (CSIF, 2020) revealed that 92.8% of teachers suffered from excessive tasks, lack of support in teleworking, and lack of technical means which are the main problems pointed out by teachers. Possible difficulties facing such policies include poor online teaching infrastructure

and lack of teacher training in using digital technologies which has probably a bad effect on their teaching performance.

Teacher performance have an important role in determining the final quality of educational products, teaching performance of a teacher is important because it is expected to influence the education process at school so that the teacher's performance will be able to support the improvement of graduates' quality and competitiveness (Pa- alisbo, 2017). Teacher performance is the basis of school performance, and understanding teacher behavior is critical for effective management (Muhammad and Hassan, 2018). Thus, Teacher evaluation is a necessary component of a successful school system, and research supports the fact that teachers' good performance creates substantial economic value (Robinson, 2021).

Recognizing the importance of teaching performance as discussed in the preceding paragraph, the researcher conducted an extensive review of possible variables that may affect teaching performance. Several works of the literature showed the link between 21st-century skills and teaching performance (Corpuz & Salandanan, 2012) stated that to have better performance in teaching and to remain relevant and interesting, the teacher must possess 21st-century skills. In connection, 21st Century Skills are one of the factors that influence the job performance of teachers based on the NCBTS which is the assessment tool for teachers' job performance (Pa Alisbo, 2017). On the other hand, it was contradicted by the proposition (Varona, 2020) there is no significant correlation exists between teachers' performance and 21st-century skills. Among the four 21st-century skills, only communication showed a significant relationship to performance, while the other three skills manifest no substantial association.

It was also established that the teaching performance of a teacher is associated with digital literacy skills (Harvin, 2021) stated that one of the responsibilities of a digitally literate teacher is to guide the students regarding which sources are authentic and which are updated regularly. Thus, digital literacy skills are one of the factors that are relevant to having a quality teaching performance. On the other hand, it was contradicted by (Setyawan, 2022) that teacher performance is not directly impacted by digital literacy; instead, self- efficacy and organizational support have a significant and direct positive influence. Teachers' performance can be greatly impacted by digital literacy if self-efficacy is employed as a mediator. In addition, according to (Laar et al., 2017) although 21st- century skills and digital skills are both seen as crucial, the correlation of both variables is not yet sufficiently defined.

To provide a framework for the investigation, selected literature related to the study was presented in this chapter. In this study, 21st century skills are the moderating variable being linked to digital literacy skills as the independent variable and teaching performance as the dependent variable. Particularly, 21st century skills have the following three indicators that include learning and Innovation Skills; information, Media, and Technology Skills; and life and Career Skills. The independent variable, on the other hand, is digital literacy skills with the five indicators that include information and data literacy; communication and collaboration; digital content creation; safety; and problem-solving. For the variable teaching performance, the indicators are planning; development; and result.

The Department of Education's K-12 Basic Education Program asks for the holistic development of learners in the fast-changing 21st-century environment, and 21st Century Skills are a global framework and one of the fundamental core aspects of that program. The K-12 Program is one of its innovations, and it has paved the way for the mandatory 21st Century Skills, which comprise Learning and Innovation, Information, Media and Technology, and Life and Career Skills (Pa-alisbo, 2017). According to (Dede, 2019), the several variables of 21st century abilities that teachers must acquire impact teacher performance, which is the embodiment of teacher conduct at school. To be effective in his position, the teacher must have 21st-century abilities (Corpuz & Salandanan, 2012). Partnership for 21st Century Skills (2010), is an organization advocating to assure a 21st century education for all learners. Since teachers must be able to help students develop the 21st century abilities needed in a future society, teacher preparation programs should take this

into account at various levels, including standards, curriculum, and assessment to intentionally include 21st Century Skills into the core curriculum, teachers themselves must develop the necessary competencies (Cretu, 2017). People must cultivate higher- order cognitive abilities and competencies required for knowledge to be applied to daily activities. These abilities and competencies are referred to as "21st Century Learning Skills" in the literature since they are seen to be prerequisites for people (Anagün et al., 2016). 21st Learning skills in the twenty-first century are not just about people having enough knowledge or just about the abilities they have. The development of a person's talents, such as questioning, thinking, understanding, and problem-solving, as well as the reflection of this development on the performance of the person in his or her academic and social life, are all examples of 21st century learning skills. In this situation, it is possible to assert that 21st-century learning abilities, which include people's higher-order thinking skills, aptitudes, and performances, have a significant impact on the growth of students who can keep up with the times and foster social development (Shak Kozikoğlu, 2020).

The first domain is learning and Innovation Skills. It pertains to the primary components of the 21st-Century Learning Framework in addition to ICT skills and life and professional skills (Ismail & Balakrishnan, 2016). It is now widely acknowledged that learning and innovation skills are what distinguish pupils who are prepared for the increasingly complicated life and work situations of the twenty-first century from those who are not. For pupils to be prepared for the future, a focus on creativity, critical thinking, communication, and teamwork is crucial (Partnership for 21st Century Skills, 2010, Appendix B). These skills are comprised of the 4 Cs; first is the critical thinking skills which are about using various forms of reason, such as inductive and deductive, analyzing how parts of a whole interact with each other, evaluating major points of view and reflecting critically on learning experiences and processes. Second is communication which entails being able to articulate ideas and thoughts effectively through oral, written, and nonverbal methods, possessing the ability to decipher meaning through listening, using communication for a range of purposes, and being able to converse in diverse environments. The third is collaboration skills which involve the ability to work effectively and respectfully within a team, the willingness to compromise to accomplish a goal and assume shared responsibility. Lastly, creativity skills refer to using a wide range of idea- creation techniques, such as brainstorming, creating new and worthwhile ideas, being able to analyze and evaluate original ideas, and working creatively with others. (Cruta, 2017).

The second domain is Information, Media, and Technology. It pertains to people in the 21st century who live in a technology and media-suffused environment that is characterized by several traits, including 1) easy access to a wealth of information; 2) quick changes in technology tools; and 3) the capacity for unprecedented levels of collaboration and individual contribution. Citizens and employees must be able to demonstrate a variety of functional and critical thinking abilities linked to information, media, and technology to be effective in the twenty-first century. The literacy skills included are information literacy, media literacy, and ICT (Information, Communications, and Technology) literacy (Partnership for 21st Century Skills, 2010, Appendix B).

The third domain is Life and Career skills. It pertains to the importance of critical thinking and content understanding that is needed in today's work and personal situations. Teachers and students must pay close attention to building the necessary life and career skills if they are to successfully traverse the challenging personal and professional contexts in the globally competitive information era. The literacy skills included are flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility (Partnership for 21st Century Skills, 2010, Appendix B).

Digital literacy is defined as a person's capacity to complete a task effectively utilizing digital technology, where digital refers to information that is represented in numeric form and is intended for use by a computer (Jones- Kavalier & Flannigan, 2021). Teachers' critical role in students' technological successes and technology competency is a necessary precondition for effective teacher performance (Drossel et al.,2016).

Educators must promote technology, employ technology in their classrooms, and teach the use of technology to achieve tasks to properly teach children to evaluate, interpret, and effectively use technology (Kaware & Sain, 2015). Urged by educational reforms, educators are under constant pressure to improve, innovate, and display higher skills before their students (Priestley, 2011), including the use of technology in the teaching context (Gudmundsdottir and Hatlevik 2018). Teachers are always expected to use cutting-edge technology and keep their digital abilities up to date to deliver high-quality instruction (Peromingo & Pieterson, 2018). Educators' essential abilities, learning formats, and educational environment will all change as a result of digital competency. As facilitators and mediators of knowledge and skills, teachers must not only be competent in subject knowledge transfer but also prepare their students for twenty-first-century competencies (Madaliska-Michalak et al., 2018) for digital literacy and readiness (Godbey, 2018). As a result, good teacher performance during this pandemic is dependent on their digital literacy skills. Digital literacy is the capacity to use digital technology to acquire, manage, comprehend, integrate, communicate, evaluate, and generate information for employment, decent employment, and entrepreneurship safely and ethically. It encompasses skills that are referred to variously as media literacy, information literacy, computer literacy, and ICT literacy (UNESCO-UIS, 2018).

The first domain is information and data literacy. It pertains to a person's ability to read and comprehend the meaning of data and to apply data information to his or her life and/or work and to use it for making a data-informed decision (Rutgers, 2022).

The second domain is communication and collaboration. It pertains to the exchange of information to achieve a better understanding of things and to advance the state of a collaborative product (Will O'Connor, 2015).

The third domain is digital content creation. It pertains to the process of generating topic ideas that appeal to your audience and then creating written or visual content around those topics. It is about making information and your expertise obvious to anyone consuming your content. To gain the benefits of Digital content creation you have to make that information as accessible as possible to your audience as a blog, video, info graphic, or other formats (Stapleton, 2021).

The fourth domain is safety. It pertains to the ability of a person to protect devices, personal data and privacy, health and well-being, and the environment (UNESCO-UIS, 2018).

The fifth domain is Problem-solving. It pertains to the ability of a person to solve technical problems, identify needs and technological responses, creatively use digital technologies, and identify digital competence gaps (UNESCO-UIS, 2018).

It is important to have a good teacher. It is the single most important element impacting student achievement at school (Rice, 2021). Improving teacher quality requires a good teacher evaluation system. It allows us to recognize and reward outstanding teachers so that we can learn from and emulate their success. It also aids in identifying people who require assistance so that they can receive the additional training they require to be effective (Sedlis, 2015). All components of the educational system must be involved to improve teacher effectiveness and produce excellent graduates. As a result, numerous factors influence teacher performance, and the high performance of the instructor is dependent on those elements. According to the organizational theory of behavior, teachers' behavior in schools is first produced from a variety of events that can be observed, interpreted, and experienced by the teacher, who then causes the perception or interpretation, and lastly creates specific behaviors. Second, teacher performance, which is the embodiment of teacher conduct at school, is influenced by several elements, including 21st-century and digital literacy abilities. The extent to which factors exert pressure on teacher conduct determines whether the teacher performs well or poorly. Understanding teacher behavior is crucial for good management since teacher performance is the foundation

of school performance (Muhidin, 2019). The adoption of teacher performance is intended to have an impact on the educational process at school, allowing teachers' performance to assist in the enhancement of graduate quality and competitiveness. As a result, the quality of educational goods is heavily influenced by teacher performance (Sagala,2013).

The first domain is Planning. Refers to everything related to the previous process of reflection and design of subject matter (the curriculum, the organization of courses, labs, tutorials, planning of anticipated learning activities, evaluation criteria and methods, teaching materials and resources) (Moreno-Murcia et al., 2015).

The second domain is Development. Involves everything related to the execution of and compliance with the curriculum, the teaching and learning activities carried out, anticipated pedagogical activities, as well as applied evaluation procedures (Moreno- Murcia et al., 2015).

The third domain is the Result. Refers to achievements made by the students, and the aspects involving the revision and improvement of teaching activity, external recognition of teaching duties, and creation of teaching materials (Moreno-Murcia et al., 2015).

This research was based on the Self-Efficacy Theory. According to Albert Bandura, as cited in Corpuz & Salandanan (2011), self-efficacy is the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations. This theory serves as a basis for the study for the teachers will conduct themselves on self-assessment of their job performance and 21st Century Skills. Teachers will carefully assess and reflect on their strengths and weaknesses. This will help them recognize and enhance their strengths and correct weaknesses. In addition, according to (Dominado, 2020). It was found that 21st-century skills were positively related to teachers' performance. Thus, it could be inferred from the results of the study that when teachers possess positive perceptions about their proficiencies in terms of 21st- century skills, they may also make the necessary arrangements in their classrooms to contribute to students' cognitive and affective outcomes.

To support the anchored theory, (Dominado, 2020) on the Teachers' Performance, Technology, and 21st Century Skills: A Basis for a Faculty Development Program. Outcomes discovered that there is a highly significant relationship between 21st-century skills and the digital skills of the teacher respondents. Based on the discoveries, it is recommended that teachers must use technology efficiently for the welfare of students, teachers, and society, Improving the effectiveness of the 21st-century capabilities of educators and systems must contain responsibility for both events and require close attention to a couple of measures. To assist our teachers' technology competencies to develop to a high level, administrators ought to provide education incorporating modalities that are relevant to the times.

Another supporting theory by (Laar et al.,2020). 21st-century skills literature emphasizes a broad spectrum of skills yet does not explicitly integrate digital aspects. The digital skills literature, on the other hand, often does not cover the broad spectrum of skills posted by 21st-century skills studies. (Laar et al., 2017) conducted systematic literature to synthesize the relevant academic literature concerned with 21st-century skills and digital skills.

The dependent variable of the study is the Teaching Performance. According to the teaching performance questionnaire which was developed by (Moreno-Murcia, 2015), there are three indicators which include: (1) Planning. Refers to everything related to the previous process of reflection and design of subject matter (the curriculum, the organization of courses, labs, tutorials, planning of anticipated learning activities, evaluation criteria and methods, teaching materials, and resources); (2) Development. Involves everything related to the execution of and compliance with the curriculum, the teaching and learning activities carried out, anticipated pedagogical activities, as well as applied evaluation procedures; (3) Result. Refers to

achievements made by the students, and the aspects involving the revision and improvement of teaching activity, external recognition of teaching duties, and creation of teaching materials.

The independent variable of the study is Digital Literacy Skills. According to the digital literacy skills questionnaire which was developed by (UNESCO, 2018) there are five indicators for this variable which includes: (1) information and data literacy which refers to browsing, searching and filtering data, information and digital content, evaluating data, information and digital content, and managing data; (2) communication and collaboration which refers to interacting through digital technologies, sharing through digital technologies, engaging in citizenship through digital technologies, collaborating through digital technologies, netiquette, and managing digital identity; (3) digital content creation which refers to developing digital content, integrating and re-elaborating digital content, copyright and licenses, and programming; (4) safety which refers to protecting devices, protecting personal data and privacy, protecting health and well-being, and protecting the environment; and (5) problem solving which refers to solving technical problems, identifying needs and technological responses, creatively using digital technologies, and identifying digital competence gaps.

The moderating variable of the study is 21st-century skills. According to the 21st- century skills questionnaire which was developed by the Partnership for 21st-Century Skills (2009) there are three indicators for this variable which includes: (1) Learning and Innovation skills which refer to 4c's; Critical thinking skills which refer to teachers being able to analyze complex problems, investigate questions for which there are no clear-cut answers, evaluate different points of view or sources of information, and draw appropriate conclusions based on evidence and reasoning. Collaboration skills refer to the teachers being able to work together to solve problems or answer questions, to work effectively and respectfully in teams to accomplish a common goal, and to assume shared responsibility for completing a task. Communication Skills refer to teachers being able to organize their thoughts, and data, and find and share this effectively through a variety of media, as well as orally and in writing. Creativity and Innovation Skills refer to teachers being able to generate and refine solutions to complex problems or tasks based on the synthesis, analysis and then combining or presenting what they have learned in new and original ways; (2) Information, Media, and Technology skills which refer to information literacy, media literacy, and ICT (Information, Communications, and Technology) literacy; (3) Life and Career Skills which refers to flexibility and adaptability, initiative and self- direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

It is in the above context that the researcher decided to conduct the study to determine which of the above-mentioned variables may affect to teaching performance of teachers. Although there is already existing literature on the association between 21st- century skills and teaching performance, and so on digital literacy skills and teaching performance, those studies dealt only with two variables and did not cover the three variables in a single study. This study dealt with the three variables with one variable as the moderating construct, making this study a contribution to help the teachers in producing better performance in their teaching.

This study aimed to determine the mediating effect of 21st-century skills on the relationship between digital literacy skills and teaching performance. Specifically, it aimed to assess the mediating effect of 21st-century skills in terms of learning and Innovation Skills; information, Media, and Technology Skills; and life and Career Skills. Another aim is to find out the level of Teaching Performance in terms of planning; development; and result. Additionally, it aimed to assess Digital Literacy Skills in terms of information and data literacy; communication and collaboration; digital content creation; safety; and problem-solving. Furthermore, it aimed to determine the significant relationship that exists between Digital literacy skills and 21st-century skills; 21st-century skills and Teaching Performance; and Digital literacy skills and Teaching Performance. Lastly, it aimed to determine the mediating effect of 21st-century skills on the relationship

of digital literacy skills to teaching performance.

The following null hypotheses will be tested using the 0.05 level of significance: (1) There is no significant relationship that exists between Digital literacy skills and 21st- century skills; 21st-century skills and Teaching Performance; and Digital literacy skills and Teaching Performance. (2) There is no mediating effect of 21st-century skills on the relationship of digital literacy skills to teaching performance.

This study has been developed to create an appreciative inquiry as well as narrow down generalizations about the variables explored in this study. The results of this research will benefit the students, teachers, school, and Future Researchers. This research will provide students with countless advantages. Innovative learning experiences and strategies will be encountered fairly by all students and inspired by the guidance they will receive by the time this research effort is introduced. This research will further add to the wide knowledge and skills of teachers in providing quality instruction for their students. As well as being able to apply the information they will gain in this study, they will be informed about the outcomes of the research. They may also attempt to build or create intervention initiatives to improve their students' learning performance. The school will be represented in the entire study endeavor. This research will also become one of the school's important documents that will provide a foundation for potential students and other students with relevant fields on the subject investigated and also add to the body of literature that can be a helpful tool in providing information on the subject. To support the increasing theoretical context of the variables discussed, this study will pave the way for potential researchers to explore more indicators and provide concrete results for their research. Moreover, they can also make this research a reference if they wish to perform a similar study.

METHOD

Study Participants

The data collected in this study are from grade 11 and 12 Technical- Vocational Livelihood (TVL) students in Public School A and Public School B. Data gathering was conducted from June 24, 2023 to December 24, 2023. The study was conducted right after the validation of the research questionnaires. The students answered the survey to evaluate TVL teachers on their level of 21st-century skills in terms of critical thinking skills, collaboration skills, communication skills, creativity and innovation skills, self- direction skills, global connections, local connections, and using technology as a tool for learning. In addition, respondents were asked to rate their TVL teachers based on their Teaching Performance in terms of planning, development, and result. Furthermore, respondents were asked to rate the digital literacy skills of TVL teachers in terms of information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving.

The TVL grade 11 from Public School A has the highest number of students with a total of **234** or **131** of the total population. The Grade 12 from Public School A has **216** students or **122** of the total population. The TVL Grade 11 students from public school B have **42** students or **24** of the total population and Grade **12** students from public school B have **40** students or **23** of the total population. The criteria for inclusion in the study sample were: a) they are in Grades 11 and 12, and b) they must be enrolled in the TVL track. A Likert-type additive scale was used as a research technique, as it enables the sample's assessment of the object of the study to be quickly and broadly understood. The instrument consisted of three dimensions, which sought to determine the evaluation of teachers: (1) *21st century skills*, (2) *digital literacy skills*, and (3) *Teaching Performance*. The first dimension has fifty-nine items, the second has nineteen items and the third has twenty-eight items. The Instrument is organized using a five-point scale:

(1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly agree.

The criteria for exclusion in the study are the school heads, supervisors, parents, grade 7 to grade 10 students, and teachers who are non-major or not teaching TVL subjects. The withdrawal criteria in the study are research participants were forced to take part in the study, and research participants' dignity was not given the utmost importance. A participant can freely withdraw from the study. The participant just needs to inform the researcher about the withdrawal of participation. The participant who wishes to withdraw participation in the conduct of the study is not required to provide reasons or explanations for changing the decision.

Materials and Instruments

Three instruments were adapted to measure the three constructs of the study, which are the following: 21st-century skills, Digital literacy skills, and Teaching performance. *21st-century skills.* To help practitioners integrate skills into the teaching, Framework for 21st Century Learning was used to assess the 21st-century skills of teachers: Learning and Innovation Skills, Information, Media, and Technology skills, and Life and Career Skills (Partnership for 21st Century Skills, 2009). *Digital literacy skills.* The digital literacy skills questionnaire was developed by (UNESCO, 2018). It assessed the Digital skills of teachers: information and data literacy, communication and collaboration, digital, content creation, safety, and problem-solving. *Teaching Performance*. The Evaluation of Teaching Performance questionnaire was designed by Juan Antonio Moreno-Murcia, Yolanda Silveira Torregrosa, and Noelia Belando Pedreño, 2015). It assessed the Teaching performance of teachers: planning, development, and result. All variables with corresponding indicators are assessed using a rating scale of (5- 1). Five is the highest with a descriptive level of strongly agree, this means that the teaching Performance of TVL teachers are excellent. Four with a descriptive level of agree, this means that the teaching Performance of TVL teachers are very good. Three with a descriptive level of neutral, this means that the teaching Performance of TVL teachers are good. Two with a descriptive level of disagree, this means that the teaching Performance of TVL teachers are poor. One with a descriptive level of strongly disagree, this means that the teaching Performance of TVL teachers are very poor.

Before the conduct of the study, the researcher did a pilot test to ensure the reliability of each research instrument. Based on the Cronbach alpha result below, two sub-indicators did not meet the cut-off point of 0.7 but the overall across the variables got 0.7 and above means the internal consistency is good. Therefore, the instrument is reliable and can be used during the conduct of the study.

Design and Procedure

Using the quantitative research method, the descriptive-correlational research design was used in this study. This design involves variables that are not manipulated by the researcher and instead are studied as they exist (Belli, 2008). This research used a survey to gather data. Administering a survey to a sample or an entire population is appropriate to describe the population's attitudes, opinions, behaviors, or characteristics (Burke & Christensen, 2015). This research also employed Correlational Research Design, which according to (Cresswell, 2014) is used to describe and measure the degree of association or relationship between two or more variables or sets of scores.

Several processes was performed during collecting the data for the study. The researcher will seek permission from the Schools Division Superintendent and the Principals of the targeted schools and respondents before the collection of data. Informed consent will be secured from the Ethics Review Committee of the University of Mindanao. From June to December 2023, the reproduction of 300 (number of respondents) survey questionnaires was facilitated. Request letters are signed by the researcher, and the adviser, and distributed to the selected branches by the School Principals. A copy of the research proposal and the questionnaires are also included to give the authorities an idea of the significance of this study to their department or school as well as how data collection should be carried out in their respective schools. A

timetable is then established for the floating and retrieval period of the questionnaire from June to December 2023.

The researcher coordinates with the students upon approval to explain the purpose of this current study to them. Also, the researcher obtained the students' convenient schedule for administering the questionnaires as the target participants. To avoid the untimely disruption of their work, the researcher asked the teachers to allow them to administer the questionnaires during a vacant period where no major activities are to be conducted.

They are given 30-35 minutes to carry out the questionnaires. The data collected is treated with the utmost care and proper storage throughout the study. It also properly observed the confidentiality of the information that was collected along with the identities of the respondents.

The following statistical tools were in treating the data: Weighted mean. This is used to measure the level of structural variables that are self-directed, self-regulation, and digital competence. Pearson Product Moment Correlation. This is utilized to expose the interrelationships between self-directed, self-regulation, and digital competence. Multiple Linear Regression Analysis. This is used to determine the extent of the influence of self- directed and self-regulation on digital competence. Sobel z-test. This is used to determine the mediating magnitude or effect of self-regulation on the relationship between self- directed and digital competence.

RESULTS AND DISCUSSIONS

This chapter presents the results of the study in tabular and textual forms.

Table 1. Level of Digital Literacy in terms of;

Indicators deviation	Standard	Mean	Descriptive Equivalent
Information and data literacy			
Over-all Result	**0.92**	**3.93**	**High**
Communication and collaboration			
Over-all Result	**0.65**	**4.24**	**Very High**
Digital content Creation			
Over-all Result	**0.90**	**3.85**	**High**
Safety			
Over-all Result	**0.66**	**4.44**	**Very High**
Problem Solving			
Over-all Result	**0.67**	**4.06**	**High**
Grand Result	**0.74**	**4.14**	**High**

To ascertain the level of digital literacy skills in terms of the respective sub- domains, mean was utilized.

Among the domains of the students' metacognitive awareness, safety has the highest score with 4.44 with a standard deviation of 0.66, followed by communication and collaboration with a mean score of 4.24 with a standard deviation of 0.65, which both exhibited high. It is observed that digital content creation has the lowest average score among the five sub-domains with 3.85 with a standard deviation of 0.90. The overall average score for safety practices is 4.14, with a standard deviation of 0.74, which is equivalent to high. To access appropriate ICTs and improve the digital competence of teachers, acquiring digital literacy skills is beneficial, which is widely understood as an interrelated set of skills that are vital for success in the digital age (List, 2019).

Table 2. Level of Teaching Performance in terms of;

Indicators	Standard deviation	Mean	Descriptive Equivalent
Planning			
Over-all Result	0.68	4.34	**Very High**
Development			
Over-all Result	0.57	4.42	**Very High**
Result			
Over-all Result	0.72	4.35	**Very High**
Grand Result	0.62	4.39	**Very High**

For the level of teaching performance, development has the highest average score with 4.42 and a standard deviation of 0.57, followed by a result of 4.35 with a standard deviation of 0.72. Lastly, planning is the least among the three with an average of 4.34 with the sd of 0.68. Despite the planning getting the lowest average scores, all three exhibited the descriptive equivalent of very high. Overall, the teaching performance average score is 4.39, with 0.62 of the standard deviation, exhibiting a very high. Teachers need to continuously improve themselves professionally which is why it is important to never stop monitoring the teachers' teaching performance (Nochefranca, 2022).

Table 3. Level of 21st century skills in terms of;

Indicators	Standard deviation	Mean	Descriptive Equivalent
Learning and Innovation Skills			
Over-all Result	0.68	4.37	**Very High**
Information, Media and Technology Skills			
Over-all Result	0.68	4.39	**Very High**
Life and Career Skills			
Over-all Result	0.69	4.40	**Very High**
Grand Result	0.68	4.39	**Very High**

For the 21st century skills level, it is observed that the life and career skills yielded the highest average score of 4.40 with the standard deviation of 0.69, followed by information, media, and technology skills with the mean and standard deviation of 4.39 and 0.68, respectively. Lastly, the learning and innovation skills have the least average among the 21st century skills with the average of 4.37, and standard deviation of 0.68. These three sub-domains exhibited very high descriptive equivalent. According to the P21, assessment for 21st century skills should be completed since the teachers' knowledge and experience in 21st century skills

will be effective in guiding students (Sezginsoy-Şeker, 2023).

Table 4. Significant relationship;

Pair	Variables	Correlation Coefficient	p- value		Decision
IV and DV	Digital literacy skills and Teaching Performance	.040	0.531	Not Rejected	There is no significant relationship between IV and DV since P- value is greater than 0.05
IV and MV	Digital literacy skills and 21st- century skills	-0.014	0.828	Not Rejected	There is no significant relationship between IV and DV since P- value is greater than 0.05
MV and DV	21st-century skills and Teaching Performance	.008	0.897	Not Rejected	There is no significant relationship between IV and DV since P-value is greater than 0.05

Pearson r was used to determine the relationship between the following pairs: digital literacy skills and teaching performance; digital literacy skills and 21st-century skills; and 21st-century skills and teaching performance. It is observed that digital literacy and teaching performance have a correlation coefficient of 0.040 with p-value of 0.531, indicating there is no significant relationship between digital literacy skills and teaching performance. Hence, digital literacy skills are independent to teaching performance. According to Setyawan, F.,Widyani, A., and Suardhika, N. (2022) digital literacy does not directly affect teacher performance, both organizational support and self-efficacy have a direct positive and considerable impact. Digital literacy can significantly affect teachers' performance if self-efficacy is used as a mediator.

However, the digital literacy skills and 21st-century skills pair coefficient is inverse since the value is -0.014, p-value of 0.828. Like the pair digital literacy skills and teaching performance, there is insufficient evidence to conclude that there is a significant relationship between digital literacy skills and 21st-century skills. Thus, digital literacy skills do not affect 21st-century skills. According to (Arma, 2023), The term digital literacy or digital skills does fall under the larger umbrella for the concept of 21st-century skills. However, the latter is used to refer to a broad range of skills necessary to thrive in modern-day work environments and knowledge society while the terms such as digital competencies, digital skills, skills and digital literacy are underpinned by the use of ICTs.

Lastly, the mediating variable 21st-century skills and dependent variable teaching performance exhibited no significant relationship since Pearson r is 0.008 (p-value = 0.897), indicating the said two had no association. According to Varona, P. (2020) there is no significant correlation between teaching performance and 21st-century skills. Among the four 21st-century skills, only communication showed a significant relationship to teaching performance, while the other three skills manifest no substantial association. This concludes that the researcher cannot proceed to regression since there is no significant relationship among the variables present in this study.

Table 5. Mediating Effect;

STEP	PATH	BETA (UNSTANDARDIZED	STANDARD ERROR	BETA (STANDARDIZED)
Step 1	c	.031	.049	.040
Step 2	a	-.007	.030	-.014
Step 3	b	.014	.104	.009
Step 4	c'	.031	.049	.041

It is observed that the effect values of the digital literacy skills to teaching performance is 0.040, which indicates that there is no effects in the digital literacy skills to the teaching performance. According to (Setyawan, 2022) digital literacy does not directly affect teacher performance, both organizational support and self-efficacy have a direct positive and considerable impact. Moreover, as shown the table below, it is observed that the Sobel test p-value is 0.9072, indicating that there is insufficient evidence to conclude that there is significant effects of the moderating variable to the teaching performance.

It is confirmed that there is no significant association of the independent variable (digital literacy skills) to the teaching performance based on the p-value with 0.531. Thus, there is no direct effect of this variables. Furthermore, it is observed that there is no indirect effect of digital literacy skills to teaching performance since the p-value is 0.828. Moreover, there is not enough evidence to conclude there is significant total effects of the literacy skills to the teaching performance despite that there is effect values of 0.031, and 0.014 for the independent and moderating (21st skills) variables, respectively.

CONCLUSION AND RECOMMENDATION

Conclusion

The study revealed that the overall digital literacy skills are high, which means that the digital literacy skills, as perceived by the teachers are very good. The results further showed that among the indicators of digital literacy skills, collaboration, communication, and safety skills were practiced at all times. The study revealed that the overall teaching performance of teachers is very high, which means that the teaching performance, as perceived by the teachers are excellent. The results further showed that all the indicators of teaching performance, planning, development, and results were always practiced. Lastly, the study revealed that the overall 21st-century skills are very high, which means that the 21st-century skills, as perceived by the teachers are excellent. The results further showed that all the indicators of 21st-century skills, learning and innovation skills, information, media and technology skills, and life and career skills were practiced at all times.

The result further discussed that even though digital literacy skills, teaching performance, and 21st-century skills got high/very high ratings, those three variables do not have any significant relationship with one another. Thus, the result disproves the theoretical underpinnings of the study.

Recommendation

Based on the conclusions of the study, the following are highly recommended: Since the result showed that 21st-century skills, teaching performance, and digital literacy skills of TVL teachers are very high, except for the indicators with a descriptive equivalent of high which is the information and data literacy, digital content creation, and problem-solving. It is recommended to develop or enhance their information and data literacy skills by relying on reputable sources such as peer-reviewed journals, academic books, government publications, and well-established news outlets. Be cautious of information from unknown websites, forums,

and social media without verifying the accuracy. In addition, teachers must enhance their digital content creation by researching and analyzing the work of successful digital content creators in their chosen fields. Study their style, tone, techniques, and strategies. This will give them insights into what works and help them develop their unique approach. In addition, teachers must enhance their problem-solving skills by dividing complex problems into smaller, manageable parts. This makes the problem more approachable and allows them to focus on solving each component. Brainstorm different approaches and solutions to the problem. Encourage creativity and think outside the box. Consider both conventional and unconventional solutions.

Furthermore, the result revealed that 21st-century skills, digital literacy skills, and teaching performance do not have any significant relationship with one another and that there is no mediating effect from the moderating variable to the independent variable. It is therefore recommended to conduct another survey about the teaching standards of TVL teachers through the school heads by assessing the 21st-century skills, digital literacy skills, and teaching performance of TVL teachers compared to the past research that the TVL teachers are assessed using TVL students only, this is to avoid bias in the result.

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