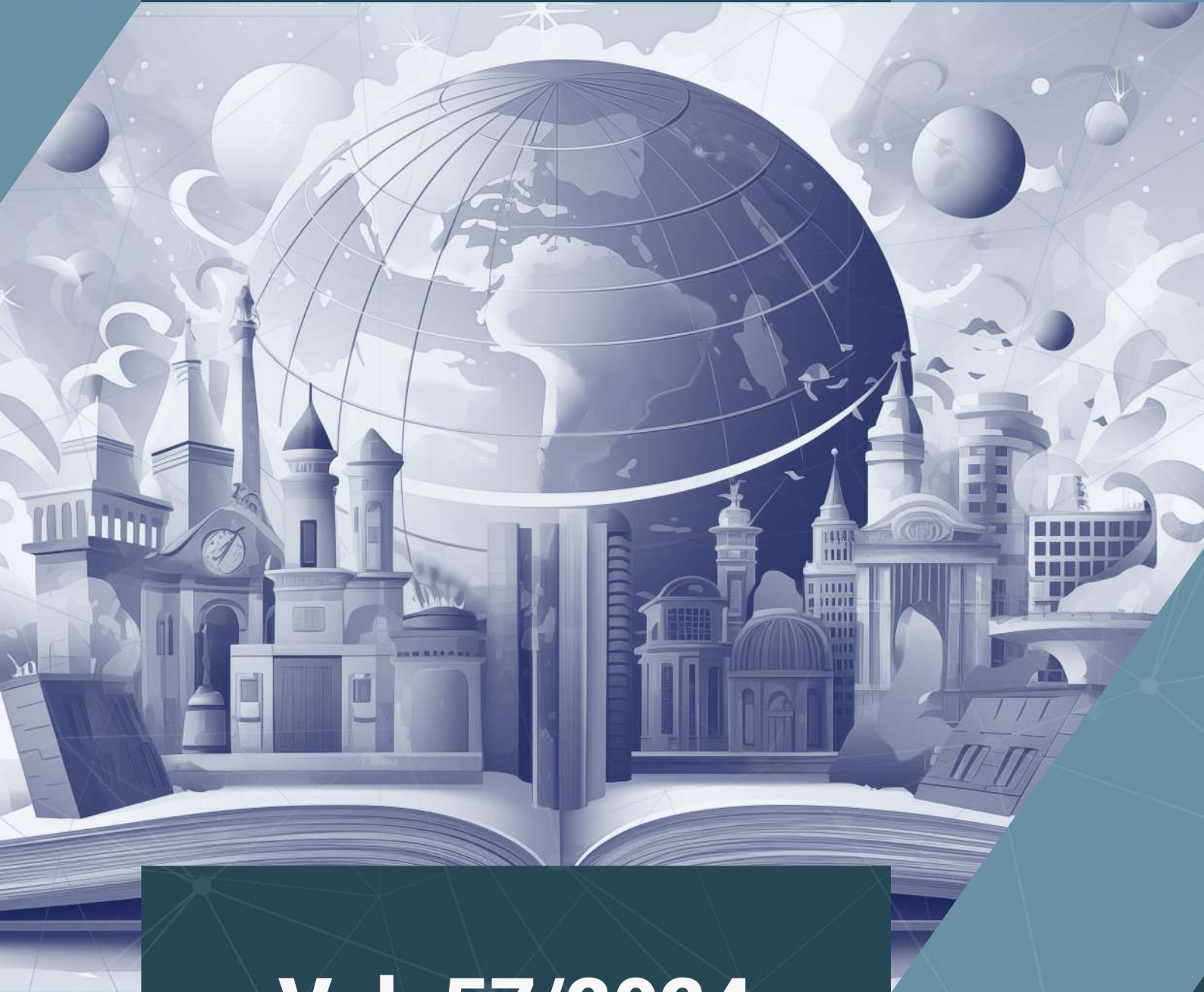




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Twenty-First Century Teaching Skills of Teachers in Chinese Educational Institutions in Central Philippines

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Abstract. Twenty-first-century teaching skills are necessary to meet the demands of the 21st-century educational curriculum. Anchored on the framework of 21st century learning and partnership for 21st century skills, this study assessed the teachers' practice of 21st century teaching skills among Chinese schools in Central Philippines in terms of critical thinking, collaboration, communication, creativity and innovation, self-direction, making global connections, making local connections, and using technology as a tool for learning relative to their age, sex, educational attainment, years of teaching, and designation. Likewise, it compared their teaching skills assessment when grouped to demographics. Using the quantitative design, the 112 stratified randomly sampled teachers responded to the standardized questionnaire. It was responded using very great to very poor extent. The data were analyzed using mean, standard deviation, and independent sample t-test. Meanwhile, the researcher adhered to the Philippine Health Research Ethics Board (PHREB). Generally, their teaching skills extent was great. Also, there was no difference in their age, sex, educational attainment, and years of teaching. However, there was a difference in designation where high school rated higher than elementary teachers. Hence, trainings are essential in continuously improving in 21st century teaching skills. Also, the results partially validated the theory. With these, further studies are recommended to validate the claims.

Keywords. 21st century teaching skills, descriptive-comparative, Chinese educational institutions, Central Philippines

1.0 Introduction

Twenty-first-century teaching skills are necessary to meet the demands of the 21st-century educational curriculum. When these skills are intact among teachers, they competently provide quality instruction that is globally competitive and contributes to the learners' preparation for life ahead [1]. Addressing the needs of education, employment, and business in the twenty-first century requires advanced communication skills, technological proficiency, a global perspective, collaborative methodologies, digital expertise, and a greater emphasis on creative applications rather than rote memorization [2]. These abilities are crucial for allowing people to continue in their chosen profession and successfully handle the demands and difficulties of teaching [3]. These skills express the characteristics that individuals must possess and continuously develop to be effective, productive, and qualified in our age [4].

Hence, teachers must bear the greatest responsibility for helping the students gain the 21st-century skills defined by various institutions and organizations [5]. In addition, educators are critical to the success of any educational program, including influencing student learning and vital to economic success and the long-term viability of education based on 21st-century skills [6]. Moreover, instructors of the twenty-first century need to be adept in terms of teaching content and incorporating technology into their lessons [7]. They must also ensure that everyone collaborates to satiate a child's needs. Moreover, teachers serve as the primary means of education [8,43,44,45,46].

Therefore, for teachers to become more effective, competent, and productive, Republic Act No. 10533, SEC. 7 stated that to meet the demand for quality teachers and school leaders, the Department of Education (DepEd) shall conduct teacher education and training programs [8, 42]. The Department of Education (DepEd) recognizes the importance of professional standards. DepEd Order No. 42 series of 2017 aimed to apply a uniform measure to evaluate teacher performance and help with professional development [9]. However, their complex tasks and responsibilities jeopardize teachers' ability to practice 21st-century teaching skills [10,42,47,48]. Most teachers are expected to complete various paperwork, participate in various training and programs, adapt to the demands of integrating technology into instruction, and prepare learning materials and instructional plans. In essence, despite a clear mandate and recognition of the necessity for teacher development and evaluation, the difficulties posed by their complex roles prevent them from successfully implementing the 21st-century teaching techniques that are essential for contemporary education [11].

Certainly, educators in Chinese schools in Central Philippines implement several twenty-first-century teaching skills; however, some skills remain unpracticed. The schools employ internally developed evaluation tools to assess teachers' performance in teaching skills. Notably, the teachers demonstrate proficiency in collaboration and communication skills. Yet, some aspects of twenty-first-century teaching skills pose challenges for teachers. They must acquire and demonstrate the essential skills of modern teaching in order to excel as educators in the twenty-first century. The Philippine Qualifications Framework (PFQ) establishes national standards for education and training outcomes, skills, and competencies. A teacher in the 21st century should possess the ability to think on a global scale, cultivate an awareness and respect for diverse cultures and differences, be proficient in technology, establish partnerships and collaborations extending beyond traditional classroom boundaries, and facilitate the sharing of knowledge within the educational setting.

Several studies were conducted on 21st-century teaching skills in the Philippines. A study on the global characteristics of 21st century teachers [7]. Another research study investigated the use of ICT and internet resources in relation to 21st-century technology-based teaching-learning approaches [12]. Research made on 21st-century teaching skills practice and their impact on the student's academic performance [13]. A study concentrating on the 21st century teaching skills about the teaching standards competence of teachers [14]. A study on the 21st-century teaching skills in correlation with job satisfaction of teachers [15]. Given the available studies, there is a dearth of literature, especially in the context of Chinese schools. It was also recommended in Esman et al. [15] to conduct further studies on this topic in different locales. This is the research gap that this study would like to fill in.

Thus, the study assessed the extent practice of 21st century teaching skills of teachers among Chinese schools in Central Philippines during 2023-2024 in the areas of critical thinking, collaboration, communication, creativity and innovation, self-direction, making global connections, making local connections, and using technology as a tool for learning when they

were taken as a whole and grouped according to age, sex, educational attainment, years of teaching, and designation. Likewise, it investigated the difference in their 21st century skills practice when grouped according to these demographics. Significantly, the findings may serve as a basis for developing a proposed School-Based 21st Century Teaching Skills Training Program for the continuous improvement of the skills of teachers in Chinese schools.

2.0 Framework of the Study

The study theoretically assumed that 21st century teaching skills vary according to their age, sex, educational attainment, years of teaching, and designation. This assumption was anchored on the Partnership for 21st Century Learning Framework. This framework delineates the skills, knowledge, and proficiencies essential for teachers to excel in both professional endeavors and personal life. This means that this framework facilitates the formation of 21st century professional learning communities of teachers. In the context of the study, the framework has something to do with the practice of teaching skills of the teachers relative to their demographics. Hence, their acquisition and utilization of 21st century teaching skills play a role in practicing the skills into their teaching instructions.

3.0 Methods

The study utilized a quantitative research design particularly, a descriptive-comparative approach. Specifically, the descriptive approach assessed the extent practice of 21st century teaching skills of teachers in Chinese schools. Meanwhile, the comparative approach investigated the significant difference in the extent practice of the 21st century teaching skills of the teachers when group according to their demographics. The respondents were the 112 teachers in Chinese schools in Central Philippines which were determined using stratified random sampling.

Table 1. Demographic Profile of the Respondents

Variable	f	%
Age		
Younger	55	49.1
Older	57	50.9
Sex		
Male	24	21.4
Female	88	78.6
Educational Attainment		
With Graduate Degree/Units	83	74.1
Without Graduate Degree	29	25.9
Years of Teaching Experience		
Shorter	53	47.3
Longer	59	52.7
Designation		
Elementary	65	58.0
High School	47	42.0
Total	112	100.0

In assessing the data, a validated and reliability-tested standardized questionnaire was used to measure the extent practice of 21st century teaching skills of teachers. It comprised 47 items spread across 8 domains namely: critical thinking, collaboration, communication, creativity and innovation, self-direction, making global connections, making local connections, and using technology as a tool for learning. Meanwhile, the instrument was already validated

and yielded a valid score of 4.75. Moreover, this was pilot-tested on 30 non-actual respondents who possessed similar characteristics to those of the actual assessors. The results indicated a high level of reliability with a score of 0.979, affirming the reliability of the instrument. It was responded using very poor extent, poor extent, moderated extent, great extent, and very great extent.

In analyzing the data, the descriptive-comparative analyses were employed. The descriptive analyses were utilized to profile the demographics of the respondents using frequency count and percentage distribution. The mean and standard deviation were employed in analyzing the extent of practice of 21st century teaching skills. Meanwhile, the comparative analysis was employed to investigate the significant difference in their extent practice of 21st century teaching skills when grouped into demographics. Using the Kolmogorov-Smirnov test to solve the problem of the normality of the distribution of the data. The normality test revealed that the variable 21st-century teaching skills [KS=0.079, p=0.080] are normally distributed. Since the variable is normally distributed, the parametric statistical tool was used for the inferential questions. Independent samples t-test was used to determine the significant difference in the extent of practice of 21st-century teaching skills of teachers when grouped according to age, sex, educational attainment, years of teaching, and designation.

Lastly, the researcher addressed the general principles of respect for persons, justice, and beneficence to fully guarantee the ethical soundness of the study in line with the guidelines established by the Philippine Health Research Ethics Board (PHREB). Specifically, it addressed issues regarding the privacy of the participants and the confidentiality of the data gathered.

4.0 Results and Discussion

Extent Practice of 21st Century Teaching Skills of Teachers

Twenty-first-century teaching skills comprise a wide-ranging set of competencies, including the knowledge, skills, and attitudes essential for thriving in the increasingly globalized workforce of the future [16]. According to Sulaiman and Ismail [6] and Esman et al. [15], the heartbeat allows teachers to improve instruction in line with modern educational advancements. It is an educational approach that combines content and skills. Without these skills, educators may resort to traditional methods such as rote memorization and passive classroom instructions [49,50,51,52,53].

Tables 2A and 2B presents the teachers' practice of teaching skills among Chinese educational institutions in Central Philippines during the school year 2023-2024. The extent of practice as a whole (M=3.9, SD=0.7) is great. When grouped according to age, younger (M=3.93, SD=0.67) and older (M=3.89, SD=0.73) rated great. In terms of sex, males (M=4.05, SD=0.59) and females (M=3.86, SD=0.73) rated great. Regarding educational attainment, with graduate degree/units (M=3.89, SD=0.73) and without graduate degree (M=3.96, SD=0.63) rated great. According to years of teaching experience, respondents with shorter (M=3.92, SD=0.66) and longer (M=3.89, SD=0.74) experience rated great. With respect to designation, those in elementary (M=3.75, SD=0.72) and high school (M=4.11, SD=0.62) rated great.

Generally, the great extent rating indicates that the teachers of these Chinese Schools practice the 21st-century teaching skills. The teachers in these Chinese schools have knowledge, abilities, and expertise essential in integrating the 21st-century teaching skills in their teaching instructions. In relation to this great practice of these educators' teaching skills reflects their ability to deliver instruction appropriate for the twenty-first century. The school's seminars, in-service training, and faculty development programs may have contributed to this admirable rating. Maravilla and Repuya [8] stated that the essential component of in-service training is

that it provides the teachers with essential skills to enhance and effectively teach 21st-century teaching instruction to students. In support, Hidayatullah et al. [17], Esman et al. [15], and Petalla and Madrigal [18] mentioned that the teachers receive in-service training and attend seminars to develop the teaching skills.

The prevalence of teachers with graduate degrees could also influence it. Most teachers in Chinese educational institutions have graduate degrees, which may influence the rating of the assessment. According to Maba et al. [19], teachers with graduate degrees can collaborate, learn, and teach peers about the complexities of educational and academic challenges that ensure educational excellence. As Albahiri and Alhaj [20] have said, research has shown that when teachers are engaged in professional development, such as graduate education, it can develop their skills and knowledge. As Roberto and Madrigal [21] and Buenacosa and Petalla [22] supported, graduate education can improve expertise, competencies, and teaching mindsets, advancing professional development and effectively applying 21st-century teaching skills. The findings imply that these teachers practiced 21st-century teaching skills. However, there is a need for continuous improvement because they did not reach a very high rating especially in these skills namely, critical thinking, collaboration, creativity and innovation, self-direction, making global connections, and making local connections.

The high rating for teachers' extensive use of technology as a learning tool indicates that the teachers in these Chinese institutions effectively demonstrate this skill among all the domains of 21st-century teaching skills. The teachers' outstanding assessment is attributed to the adequate facilities, equipment, and training of these Chinese Schools that are given to the teachers required to practice these skills. In support, Lavelle et al. [23] stated that the availability of resources and ease of access to the World Wide Web and other media platforms like computers, projectors, and the Internet are some of the factors that enrich the performance of teachers. In addition, Shafie et al. [24] and Petalla [25] mentioned that the teachers must be well-versed, knowledgeable, and competent in teaching and training in incorporating technology into their teaching in twenty-first-century education.

According to Hatlevik et al. [26], the teachers receive training and workshops on properly using information and communication technology, which promotes digital inclusivity and equity among their students. As a matter of fact, Harris et al. [27] and Francis [28] believe that in education, technology makes it possible to access information and deliver it quickly and easily. Utilizing the appropriate tools, teachers can incorporate technological tools easily to allow their students to develop self-directed learning and assess the credibility and relevance of online resources in the classroom. With this, it implies that these Chinese educational institutions provide the essential resources teachers need. The teachers in these Chinese schools are participative and willing to learn in the use of technology. Perhaps these Chinese schools will continue to provide these resources for the continuous improvement essential in 21st-century education.

The lowest-rated domain is global connections, but that does not mean it is low. If these teachers in these Chinese institutions improve this domain, it will reach a very great extent, which is a higher rating. While the great extent result indicates that the practice of teachers enables them to excel in practicing this skill, however, attention must be directed toward improving it within these Chinese schools. Meanwhile, the great extent of the rating may be influenced by the outnumbering of teachers with graduate degrees. According to Cochran-Smith et al. [29], graduate education allows teachers to widen their perspectives from the local to the global levels. It allows the teachers to position themselves in various cultural and contextual settings, improving their knowledge and skills. In support, Roberto and Madrigal

[21] emphasize that graduate education for teachers is important in ensuring excellence in global connection skills in this contemporary education. In addition, Esman et al. [15] stated that teachers with graduate degrees are engaged in research, attend international conferences, and publish their work, demonstrating their ability to establish global connections. Consequently, it implies the importance of graduate degrees and for these Chinese institutions to provide graduate degree programs for the teachers to grow professionally.

In terms of their demographic, all are rated to a great extent in their practice of 21st-century teaching skills. Teachers in Chinese institutions practice 21st-century teaching skills in their teaching instructions regardless of their demographic. With regards to the distribution of age and years of teaching, these are proportionate, which may influence the evaluation in the practice of 21st-century teaching skills. The matter of sex, educational attainment, and designation, may influence the assessment due to the outnumbering of females than males, the prevalence of those with graduate degrees than those without graduate degrees, and the number of elementary teachers than high school teachers.

This could be attributed to the fact that all the teachers are exposed to several in-service trainings and seminars of the schools, which can develop their knowledge, skills, and expertise, allowing the teachers in these Chinese schools to practice 21st-century teaching skills in their teaching instructions regardless of their status. Throughout the world, teacher training programs are designed to give educators the skills required in their professional careers. Osamwonyi [30] states that the teachers serving the school can participate in in-service training that can enhance their professional skills, knowledge, and interest regardless of their status.

Hidayatullah et al. [17] state that in-service training and seminars are essential for teachers to attain the necessary skills in teaching. Moreover, Esman et al. [15] and Maravilla and Repuya [8] state that regular in-service training and seminars conducted among the teachers can ensure the quality delivery of the curriculum. All teachers are required to attend and participate in the in-service training of the school. Furthermore, according to Momdijan et al. [31], school teachers must undergo training in using technology and resources to encourage collaboration in teaching-learning instructions. Moreover, according to Dilshad et al. [32], all teachers employ continuous professional development, which involves interventions during the year.

In the domain of communication male teachers in these Chinese institutions rated as very great extent than female teachers. According to Ravitz et al. [16], communication is the ability to effectively communicate ideas and instructions orally, in writing, and through various media platforms. In fact, MacNell et al. [33] state that male educators have significantly higher communication skills than female educators. Aside from that, Ghavifekr et al. [34] state that male teachers have more advanced computer skills than their female counterparts. In addition, Sulaiman and Ismail [6] mentioned that male teachers are more advanced in integrating technology into the classroom teaching and learning instruction process.

In terms of the domain of using technology as a tool for learning, in these Chinese schools' male teachers rated as very great extent than their female counterparts. As per Ravitz et al. [16], employing technology as an educational tool involves utilizing suitable information and communication technologies within instructional methods for both learning and teaching. In fact, Cai et al. [35] revealed that male teachers use technology more than their female counterparts. Male teachers can learn and use technology in their teachings effectively. According to Teo et al. [36], male teachers are confident in using technology in education and can use it in their teaching instructions. Moreover, Hamari and Nousianen [37] found that male educators integrate technology into their teaching as a tool for learning, researching, and

processing information. In support, Sanchez-Prieto et al. [38] revealed that male teachers are more able to adopt and accept the use of technology in their practice than their female counterparts.

With regards to the domain of designation, in these Chinese educational institutions, high school teachers rated to a very great extent than elementary teachers. The secondary teachers in these Chinese schools practice 21st-century teaching skills in their teaching instructions. In fact, Shafie et al. [24] found that secondary teachers are well-equipped to integrate 21st-century strategies into their classroom instruction. In support, Sulaiman and Ismail [6] mentioned that amidst the demands of the educational environment, high school teachers demonstrate an ability to effectively incorporate 21st-century teaching techniques in their teaching instructions. Moreover, O'Neal et al. [39] state that high school educators use computers and software resources to give or illustrate examples to students. Furthermore, Ghavifekr et al. [34] found that secondary teachers practice the use of computers in accessing and assessing the students' results and tracking their academic progress.

These imply that the teachers in these Chinese educational institutions practice 21st-century teaching skills. However, there is a need for continuous development to enhance these skills. These schools can provide collaborative activities that allow teachers to share knowledge and experiences to achieve common goals.

Table 2.A. *Extent of Practice of Teaching Skills of Teachers*

Variable	21st-century Teaching Skills			Critical Thinking			Collaboration			Communication		
	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int
Age												
Younger	3.93	0.67	Gr	4.00	0.66	Gr	3.97	0.72	Gr	4.01	0.71	Gr
Older	3.89	0.73	Gr	4.04	0.70	Gr	3.96	0.85	Gr	4.01	0.75	Gr
Sex												
Male	4.05	0.59	Gr	4.18	0.57	Gr	4.17	0.57	Gr	4.26	0.65	VG
Female	3.86	0.73	Gr	3.98	0.70	Gr	3.91	0.83	Gr	3.94	0.74	Gr
Educational Attainment												
With Graduate Degree/Units	3.89	0.73	Gr	4.03	0.65	Gr	4.02	0.77	Gr	3.99	0.75	Gr
Without Graduate Degree	3.96	0.63	Gr	4.01	0.77	Gr	3.82	0.83	Gr	4.07	0.67	Gr
Years of Teaching Experience												
Shorter	3.92	0.66	Gr	4.03	0.68	Gr	3.92	0.70	Gr	4.00	0.72	Gr
Longer	3.89	0.74	Gr	4.01	0.68	Gr	4.00	0.86	Gr	4.02	0.74	Gr
Designation												
Elementary	3.75	0.72	Gr	3.92	0.67	Gr	3.81	0.82	Gr	3.89	0.77	Gr
High School	4.11	0.62	Gr	4.17	0.67	Gr	4.19	0.68	Gr	4.17	0.64	Gr
Whole	3.90	0.70	Gr	4.02	0.68	Gr	3.97	0.78	Gr	4.01	0.73	Gr

Table 2.B. Extent of Practice of Teaching Skills of Teachers

Variable	Creativity and Innovation			Self-direction			Making Global Connections			Making Local Connections			Using Technology		
	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int
Age															
Younger	3.99	0.74	Gr	3.95	0.67	Gr	3.63	1.00	Gr	3.62	0.98	Gr	4.16	0.93	Gr
Older	3.97	0.76	Gr	3.92	0.77	Gr	3.56	1.03	Gr	3.60	1.01	Gr	3.98	0.88	Gr
Sex															
Male	4.15	0.65	Gr	4.06	0.68	Gr	3.65	0.92	Gr	3.69	1.03	Gr	4.23	0.95	VG
Female	3.93	0.77	Gr	3.90	0.73	Gr	3.58	1.04	Gr	3.59	0.98	Gr	4.03	0.89	Gr
Educational Att.															
W/ Grad Deg/Unit	3.99	0.74	Gr	3.91	0.74	Gr	3.51	1.08	Gr	3.58	1.04	Gr	4.03	0.92	Gr
W/out Grad Deg	3.97	0.78	Gr	4.01	0.66	Gr	3.83	0.75	Gr	3.70	0.84	Gr	4.18	0.85	Gr
Yrs. of Teaching															
Shorter	4.00	0.74	Gr	3.96	0.64	Gr	3.66	0.96	Gr	3.62	0.99	Gr	4.08	0.93	Gr
Longer	3.96	0.76	Gr	3.92	0.79	Gr	3.53	1.06	Gr	3.60	1.01	Gr	4.06	0.88	Gr
Designation															
Elementary	3.87	0.76	Gr	3.78	0.74	Gr	3.44	1.03	Gr	3.44	1.02	Gr	3.85	0.92	Gr
High School	4.13	0.71	Gr	4.16	0.64	Gr	3.80	0.96	Gr	3.84	0.92	Gr	4.38	0.79	VG
Whole	3.98	0.75	Gr	3.94	0.72	Gr	3.59	1.01	Gr	3.61	0.99	Gr	4.07	0.90	Gr

Difference in the Extent of Practice of Teaching Skills of Teachers

Table 3 presents the significant difference in the extent of practice of twenty-first century teaching skills when grouped according to the demographics. Using Independent Sample t-test, there was no significant difference in the extent of practice of 21st-century teaching skills of teachers when grouped according to age [$t(110)=0.303$, $p=0.763$], sex [$t(110)=1.179$, $p=0.241$], educational attainment [$t(110)=0.468$, $p=0.641$], and year of teaching experience [$t(110)=0.161$, $p=0.873$]. Hence, the hypotheses are accepted. Meanwhile, there was a significant difference in the extent of the practice of 21st-century teaching skills of teachers when grouped according to designation [$t(110)=2.778$, $p=0.006$]. Post hoc analysis revealed that the high school teachers rated significantly higher than elementary teachers. Hence, the hypothesis is rejected.

The result indicates that the demographics namely, age, sex, educational attainment, and years of teaching have nothing to do in their practice of 21st century teaching skills. This suggests that the teachers, regardless of their demographics, have similar point of view toward practicing these skills, implying that these demographics have no significant influence on their adoption of 21st-century teaching skills. In fact, Albahiri and Aljah [20] state that the teacher's ability to absorb 21st-century teaching skills into their teaching instructions depends on their effectiveness as teachers rather than their status. In support, Sulaiman and Ismail [6] mentioned that age is not a barrier for teachers to apply 21st-century teaching skills to their teaching instructions. In addition, Pa-alisbo [11] revealed that the education level does not significantly influence teachers' approach to integrating these skills into their practice. Aside from that, according to Gelmez Burakgazi et al. [40], teachers practice 21st-century teaching skills regardless of their sex. Both male and female teachers practice 21st-century teaching skills in their teaching instructions. Furthermore, Esman et al. [15] found no significant difference in the practice of 21st-century teaching skills among teachers concerning their age, level of education, and years of teaching experience.

Meanwhile, there was a significant difference in the practice of 21st-century teaching skills when grouped according to designation. The findings show that the high school teachers

in these Chinese institutions practice 21st-century teaching skills in their teaching instructions than the elementary teachers. Perhaps the demands at the secondary level are higher than at the primary level. In a secondary level, students are knowledgeable in technology, with this the high school teachers adopt, learn, and apply the necessary skills, resulting in them meeting the higher demands at the secondary level. As a matter of fact, Shafie et al. [24] found out that secondary teachers are well-prepared to incorporate 21st-century teaching skills into their teaching instructions. In support, Sulaiman and Ismail [6] state that the secondary level emphasizes integrating 21st-century teaching methodologies, giving high school teachers the ability to effectively practice 21st-century teaching skills. However, according to Stobaugh et al. [41] elementary teachers are more productive in practicing the skills than the high school teachers. Meanwhile, Ghavifekr et al. [34] mentioned that high school teachers used computer-based instructions, such as using software and other media platforms to practice 21st-century teaching skills in modern education and in accessing the result and tracking the academic progress of the students.

This could be attributed to the universal expectation for all teachers to practice 21st-century teaching skills necessary to meet the needs of the students and the educational guidelines. The practice of 21st-century teaching skills depends on the effectiveness of the teachers rather than their demographics. However, the differences between elementary and secondary teachers appear to be the increased demands of the secondary level as supported by Esman et al. [15] and Shafie et al. [24].

Table 3. *Difference in the Extent of Practice of Teaching Skills of Teachers*

Variable	T	df	p
Age	0.303	110	0.763
Sex	1.179	110	0.241
Educational Attainment	0.468	110	0.641
Year of Teaching Experience	0.161	110	0.873
Designation	2.778*	110	0.006

Note: *difference is significant when $p \leq 0.05$

The study perceived that the 21st-century teaching skills vary according to their demographics. According to the Partnership for 21st Century Learning Framework, teachers must master the skills, knowledge, and expertise to succeed in work and life. The results partially validated the framework which showed that the high school teachers can effectively practice 21st-century teaching skills needed in contemporary education by mastering the necessary skills, knowledge, and expertise in teaching. Moreover, it implies that the practice of 21st century teaching skills have nothing to do with their demographics except in the designation.

5.0. Conclusion

Twenty-first century teaching skills are enhanced and acquired among teachers in Chinese schools through improving and advancing strategies and activities to cope up with the demands of educational landscape. Meanwhile, in practicing 21st century teaching skills training seminars and graduate studies are essential to widen their horizons. With the lowest rating, making global connections of the teachers imply that the essentials of professional development to broaden their knowledge, expertise, and horizons to continuously acquire the necessary skills.

Additionally, adequate facilities and equipment are necessary to all levels for integrating the skills required to meet the demands of 21st century educational landscape.

6.0. Limitations of the Findings

The findings is only limited to quantitative research, particularly the descriptive-comparative approach. In terms of schools, the study is limited only to the selected Chinese schools in Central Philippines. With regard to demographics, the study is only limited to five demographics, namely age, sex, educational attainment, years of teaching, and designation. Lastly, the study is limited only to the perspective of the teachers in the context of 21st-century teaching skills.

7.0. Practical Value of the Paper

The findings can be beneficial to the administrators of Chinese schools as a baseline for training programs and seminars for the continuous improvement of the practice of 21st-century teaching skills of teachers. It can also be beneficial to the teachers in integrating 21st century teaching strategies into their teaching. This may serve as empirical data that provides teachers with essential programs to enhance their teaching performance and instruction, aligning them with the demands of 21st-century education.

8.0. Directions for Future Research

Future researchers are encouraged to conduct studies using qualitative, mixed-method approaches, or experimental method wherein there is an actual classroom observation to validate the findings of the study. Also, it will be aided by employing other Chinese institutions in different regions. With regards to demographics, researchers can use the profile mentioned or add others to validate the claims of the study. Finally, future researchers can conduct studies from students' perspective in the context of 21st century skills to check the reliability and validity of the findings.

9.0. Declaration of Conflict of Interest

No potential conflicts of interest relating to the research, writing, or publishing of this work were disclosed by the authors, according to their report.

10.0 Acknowledgement

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11.0 References

- [1] Kim S, Raza M, Seidman E. Improving 21st-century teaching skills: The key to effective 21st-century learners. *Research in Comparative and International Education*. 2019 Mar;14(1):99-117. <https://doi.org/10.1177/1745499919829214>
- [2] Geisinger KF. 21st century skills. What are they and how do we assess them? *Applied measurement in education*. 2016 Oct 1; 29 (4):245-9 <https://doi.org/10.1080/08957347.2016.1209207>

[3] Martinez C. Developing 21st century teaching skills: A case study of teaching and learning through project-based curriculum. *Cogent Education*. 2022 Dec 31;9(1):2024936. <https://doi.org/10.1080/2331186x.2021.2024936>

[4] Hamarat E. *Turkey's 21st Century Skills Education Policy in Focus*. Istanbul; Seta Publishing. 2014

[5] Karali Y, Aydemir H. Examining Primary School Teachers' 21st Century Teacher and Learner Skills. *The Eurasia Proceedings of Educational and Social Sciences*. 2020 Jun 29;17:50-6. <https://doi.org/10.47994/usbad.824081>

[6] Sulaiman J, Ismail SN. Teacher competence and 21st century skills in transformation schools 2025 (TS25). *Universal Journal of Educational Research*. 2020 Aug;8(8):3536-44. <https://doi.org/10.13189/ujer.2020.080829>

[7] Jan H. Teacher of 21st century: Characteristics and development. *Research on Humanities and Social sciences*, 7 (9), 50-54.

[8] Maravilla MF, Repuya CR. Exploring the 21st Century Class Facilitation of Public Elementary Teachers. *Asia Pacific Journal of Educational Perspectives*. 2021 Dec;8(2). <https://research.lpubatangas.edu.ph/wp-content/uploads/2022/03/05-APJEP-2021-30-Maravilla-Repuya.pdf>

[9] Department of Education (DEPED). National Adoption and Implementation of the Philippine Professional Standards for Teachers. 2017 <https://www.deped.gov.ph/2017/08/11/do-42-s-2017-national-adoption-and-implementation-of-the-philippine-professional-standards-for-teachers/>

[10] Tancinco NP. Status of teachers' workload and performance in State Universities of Eastern Visayas: Implications to educational management. *IOSR Journal of Business and Management*. 2016;18(6):46-57. <https://doi.org/10.9790/487X-1806044657>

[11] Pa-alisbo MA. The 21st Century Skills and Job Performance of Teachers. Online Submission. 2017;8(32):7-12. <https://eric.ed.gov/?id=ED578609>

[12] Garba SA, Byabazaire Y, Busthami AH. Toward the use of 21st century teaching-learning approaches: The trend of development in Malaysian schools within the context of Asia Pacific. *International Journal of Emerging Technologies in Learning*. 2015 Jan 1;10(4):72-9. <https://doi.org/10.3991/ijet.v10i4.4717>

[13] Tuazon A, Sumadsad C. Observance of 21st century skills teaching practices and its impact on academic performances. *Kasetsart Journal of Social Sciences*. 2022 Oct 12; 43(4); 903-10 <https://so04.tci-thaijo.org/index.php/kjss/article/view/261658/176933>

[14] Zamora JT, Zamora JJ. 21st century teaching skills and teaching standards competence level of teacher. *International Journal of Learning, Teaching and Educational Research*. 2022 May 30;21(5):220-38. <https://doi.org/10.26803/ijlter.21.5.12>

[15] Esman EN, Bual JM, Madrigal DV. Twenty-first century teaching skills and job satisfaction of public senior high school teachers in Central Philippines. *Asian Journal of Advanced Research and Reports*. 2023 May 9;17(7):46-62. <https://doi.org/10.9734/ajarr/2023/v17i7493>

[16] Ravitz J. A Survey for measuring 21st century teaching: West Virginia 21st Century Teaching and Learning Survey. [WVDE-CIS-28]. 2014. <https://www.evaluationbydesign.com>

[17] Hidayatullah D, Eliyana A, Sariwulan T, Buchdadi AD. Testing the Role of Competence and Supervision of Job Satisfaction and Its Impact on Teacher Performance. *Systematic Reviews in Pharmacy*. 2020 Sep 1;11(9).

<https://www.sysrevpharm.org/articles/testing-the-role-of-competence-and-supervision-of-job-satisfaction-and-its-impact-on-teacher-performance.pdf>

[18] Petalla MB, Madrigal DV. Competence and efficiency performance of basic education teachers. Nirwan Idrus. 2017 Dec;15(3):60. <https://academia.edu>

[19] Maba W, Mantra IB, Widiastuti IA. Teachers of 21st century: Teachers' roles in innovating learning strategies and challenges. International Journal of Social Science. 2023 Apr 13;2(6):2405-10. <https://bajangjournal.com>

[20] Albahiri MH, Alhaj AA. Teachers in the Twenty-first Century and Challenges of Technological Innovation in Teaching and Learning. Journal of Positive Psychology and Wellbeing. 2023 Feb 15:836-52. <https://mail.journalppw.com/index.php/jppw/article/view/15736/10111>

[21] Roberto J, Madrigal D. Teacher quality in the light of the Philippine professional standards for teachers. Philippine Social Science Journal. 2018 Dec 31;1(1):67-80. <https://doi.org/10.52006/main.v1i1.13>

[22] Buenacosa MS, Petalla MB. Embracing the Unknown: Adaptability and Resiliency of Out-of-Field Secondary Teachers Teaching English in Public Schools. Asian Journal of Education and Social Studies. 2022 Dec 23;37(2):1-29. <https://doi.org/10.9734/ajess/2022/v37i2796>

[23] Lavelle JP, Stimpson MT, Brill ED. Evolution of a flipped engineering economy course. In 2015 ASEE Annual Conference & Exposition 2015 Jun 14 (pp. 26-701). <https://doi.org/10.18260/p.24038>

[24] Shafie H, Majid FA, Ismail IS. Technological pedagogical content knowledge (TPACK) in teaching 21st century skills in the 21st century classroom. Asian Journal of University Education. 2019 Dec;15(3):24-33. <https://doi.org/10.24191/ajue.v15i3.7818>

[25] Petalla MB. Exploring the digital transformation of teaching-learning experiences of the baby boomer generation. Philippine Social Science Journal. 2022 Mar 27;5(1):90-6. <https://doi.org/10.52006/main.v5i1.471>

[26] Hatlevik OE, Ottestad G, Throndsen I. Predictors of digital competence in 7th grade: A multilevel analysis. Journal of Computer Assisted Learning. 2015 Jun;31(3):220-31. <https://doi.org/10.1111/jcal.12065>

[27] Harris J, Al-Bataineh A. One to one technology and its effect on student academic achievement and motivation. In Global learn 2015 Apr (pp. 579-584). Association for the Advancement of Computing in Education (AACE). <https://doi.org/10.30935/cedtech/6182>

[28] Francis J. The effects of technology on student motivation and engagement in classroom-based learning. <https://dune.une.edu/theses/121>

[29] Cochran-Smith M, Keefe ES, Carney MC, Sánchez JG, Olivo M, Smith RJ. Teacher preparation at new graduate schools of education. Teacher Education Quarterly. 2020 Apr 1;47(2):8-37. <https://www.jstor.org/stable/26912665>

[30] Osamwonyi EF. In-service education of teachers: Overview, problems and the way forward. Journal of Education and Practice. 2016;7(26):83-7. <https://eric.ed.gov/?id=EJ1115837>

[31] Momdjian L, Manegre M, Gutiérrez-Colón M. Digital Competences of Teachers in Lebanon: A Comparison of Teachers' Competences to Educational Standards. Research in Learning Technology. 2024;32:3203. <https://doi.org/10.25304/rlt.v32.3203>

[32] Dilshad M, Hussain B, Batool H. Continuous professional development of teachers: A case of public universities in Pakistan. Bulletin of Education and Research. 2019 Dec;41(3):119-30.

<https://search.ebscohost.com/login.aspx?direct=true&db=ofm&AN=142016125&site=ehost-live>

[33] MacNell L, Driscoll A, Hunt AN. What's in a name: Exposing gender bias in student ratings of teaching. *Innovative Higher Education*. 2015 Aug;40(4):291-303. <https://doi.org/10.1007/s10755-014-9313-4>

[34] Ghavifekr S, Kunjappan T, Ramasamy L, Anthony A. Teaching and Learning with ICT Tools: Issues and Challenges from Teachers' Perceptions. *Malaysian Online journal of educational technology*. 2016;4(2):38-57. <https://eric.ed.gov/?id=EJ1096028>

[35] Cai Z, Fan X, Du J. Gender and attitudes toward technology use: A meta-analysis. *Computers & Education*. 2017 Feb 1;105:1-3. <https://doi.org/10.1016/j.compedu.2016.11.003>

[36] Teo T, Fan X, Du J. Technology acceptance among pre-service teachers: Does gender matter?. *Australasian Journal of Educational Technology*. 2015 May 12;31(3). <https://doi.org/10.14742/ajet.1672>

[37] Hamari J, Nousiainen T. Why do teachers use game-based learning technologies? The role of individual and institutional ICT readiness. In 2015 48th Hawaii international conference on system sciences 2015 Jan 5 (pp. 682-691). IEEE. <https://doi.org/10.1109/hicss.2015.88>

[38] Sánchez-Prieto JC, Olmos-Migueláñez S, García-Peñalvo FJ. MLearning and pre-service teachers: An assessment of the behavioral intention using an expanded TAM model. *Computers in human behavior*. 2017 Jul 1;72:644-54. <https://doi.org/10.1016/j.chb.2016.09.061>

[39] O'Neal LJ, Gibson P, Cotton SR. Elementary school teachers' belief about the role of technology in 21st century teaching and learning. *Computers in the school*. 2017 Jul 3; 34(3), 192-206 <https://doi.org/10.1080/07380569.2017.1347443>

[40] Gelmez Burakgazi S, Karsantik Y, Aktan T, Ayaz MA, Büge BC, Karataş F, Ödün S, Varol Şanlı Ş, Tarım B, Yavaşca O. Equipped or not? Investigating pre-service teachers' 21st century skills. *Asia Pacific Journal of Education*. 2019 Oct 2;39(4):451-68. <https://doi.org/10.1080/02188791.2019.1671803>

[41] Stobaugh R, Mittelberg J, Huang X. Examining K-12 students' perceptions of student teacher effectiveness. *Teacher Development*. 2020 Mar 14;24(2):274-92. <https://doi.org/10.1080/13664530.2020.1739740>

[42] Jorilla CD, Bual JM. Assessing the teachers' competence in diocesan Catholic schools relative to the Philippine Professional Standards for Teachers. *Philippine Social Science Journal*. 2021 Jun 17;4(2):71-9.

[43] Bual J, Madrigal D. The quality of Catholic education in a diocesan school relative to the Philippine Catholic school standards. *Philippine Social Science Journal*. 2018 Dec 31; 1(1):41-53. Available: <https://doi.org/10.52006/main.v1i1.11>

[44] Banusing RO, Bual JM. Appraising the quality of diocesan Catholic education in accordance with Philippine Catholic schools standards. *Philippine Social Science Journal*. 2021 Jun 17; 4(2):80-9. Available: <https://doi.org/10.52006/main.v4i2.344>

[45] Bual JM, Madrigal DV. Correlating the school climate and teacher leadership of Catholic schools in Antique, Philippines. *Asian Journal of Education and Social Studies*. 2021; 21(4). Available: <https://doi.org/10.9734/AJESS/2021/v21i430514>

[46] Seldura JB, Doruelo ME, Bual JM, Madrigal DV. Technological, Pedagogical, and Content Knowledge of Physical Education Teachers in Selected Private Junior High Schools. *Asian Journal of Advanced Research and Reports*. 2024 Mar 23;18(5):58-71.

[47] Alic AK, Bual JM. Readings in Philippine history: Course review, best practices, and challenges among Higher Education Institutions. *Philippine Social Science Journal*. 2021 Dec 15; 4(4):91-103. Available: <https://doi.org/10.52006/main.v4i4.424>

[48] Cena JB, Bual JM. Spiritual well-being of senior high school students of Philippine public schools. *Philippine Social Science Journal*. 2021 Dec 14; 4(4):50-61. Available: <https://doi.org/10.52006/main.v4i4.446>

[49] Margario BM, Solidarios JT, Bual JM. Learning environment, motivation, and challenges of junior high students under physical education modular instruction. *Asian Journal of Education and Social Studies*. 2022:47-59. 10.9734/AJESS/2022/v31i430757

[50] Pahilanga LL, Bual JM, Madrigal DV. Life skills of Filipino emerging adults of a Catholic higher education institution in Central Philippines. *Indonesian Journal Of Educational Research and Review*. 2023 Apr 12;6(1). <https://doi.org/10.23887/ijerr.v6i1.59582>

[51] Rios MA, Bual JM, Madrigal DV. Proficiency Level and Challenges of Grade 11 Public School Students on Contemporary Issues. *JPI (Jurnal Pendidikan Indonesia)*. 2023 Dec 23;12(4).

[52] Garcia JV, Bual JM. Awareness and practice of public school core values among junior high school students. *Asian Journal of Education and Social Studies*. 2022;31(4):1-2.

[53] Beboso CG, Bual JM. Students' motivation and perception in learning social science using distance learning modality during COVID-19-pandemic.