

The Roles of Teachers in Technology-Driven Classroom Using ISTE Standards for Educators

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Abstract: In this study, the roles of educators in the technology-driven classroom were examined and interpreted based on the framework of International Society for Technology in Education (ISTE) standards for educators. Further, these roles of educators include being a facilitator, learner, collaborator, leader, citizen, analyst, and designer. These roles of educators in the technology-driven classroom must be certain this time of the COVID-19 crisis given that the educational system is now diverted into a more technologically advanced setting. Moreover, this study also examined differences among the respondents' roles based on their sex, age, the status of employment, and length of service. To be able to gather necessary data, a descriptive method using a quantitative approach was employed in this study. The validated questionnaire was the research instrument used to collect data from twenty (20) selected faculty members of the Polytechnic University of the Philippines Quezon City. This study found out that the respondents resolutely incorporate all of the ISTE standards for educators as their roles in technology-driven classrooms. Further, teachers as learners, citizens, and facilitators are the top perceived roles of the respondents among others. The results also determined that the roles of teachers using ISTE standards had no significant difference among the respondents' sex, age, the status of employment, and length of service. A set of recommendations for future research and practice were provided based on the findings of this study.

Keywords: ISTE standards, Teachers' Roles, Technology-driven Classroom, Polytechnic University of the Philippines

I. INTRODUCTION

Quality learning is reliant upon the quality of teaching. Teachers exert much effort to obtain and set forth high-quality learning for their students. Despite the present COVID-19 crisis, teachers still undeniably play various roles in the academe. In a general context, they used to contribute to propelling the country to progress and development by producing holistic learners equipped with 21st-century skills who are able to participate in nation-building as well.

In education, technology merely becomes lifeless without considering the incessant focus of utilizing it as a method for achieving sustainable goals and desired learning outcomes [38]. For the teachers to critically prepare the students for many disruptions of the present and future world, ICT integration must be done holistically and must be placed in a context that forms essential components such as the development of 21st-century skills, socio-emotional intelligence, global citizenship, lifelong learning, and a sense of justice [5].

However, to fulfill these duties, teachers must be highly competent in employing the standards being imposed on them both in a local and international context. In education, the term "standard" is often used and described reciprocally with the term "competency". The term competency pertains to the combined application of skills, knowledge, and attitude that is successfully applied to face-to-face or virtual interactions with people [33] [6]. Teacher competence is a way of looking at teacher quality that seems to be applied globally [14].

In the Philippine context, the competence of teachers under the basic education program is being assessed with the use of the Philippine Professional Standards for Teachers (PPST) Framework which is formerly known as the National Competency-Based Teacher Standards (NCBTS). Based on the principle of lifelong learning, the Department of Education (DepEd) recognizes the significance of professional standards in the advancement of teachers and continuing professional development [12]. This framework is dedicated to emphasizing that professional engagements or interventions are essential to capacitate teachers in elevating student achievement.

Further, enhancing the educators' competence is necessary for advancing the research development among universities and colleges across the country which is highly needed to improve the quality of life in a larger sense. The teaching quality, industry awareness, and research capacity are being influenced by peripheral factors like the positive academic approach between job performance and competency of teachers [19]. Those factors must be dealt with cautiously to assess the quality of teachers' competencies.

This study is generally based upon the framework of International Society for Technology in Education (ISTE) standards for educators. This framework serves as the latest roadmap of educator standards that are designed to help educators produce empowered learners, deepen their teaching strategies, promote collaboration, and reinvent current educational approaches. These also comprise how educators will be able to teach, work and learn the digital age skills and educational insights in a more specific context. Furthermore, these standards for educators include being a facilitator, learner, collaborator, leader, citizen, analyst, and designer [36].

These standards are the ultimate framework for successfully performing digital approaches to positively

change learning, teaching, and leading by providing certain standards specific to students, educators, coaches, and education leaders. These also serve as a basis for re-engineering the context of education for the digital age across the globe. They were produced with input from experts within the field and are generally recognized and utilized worldwide. Since this framework maintains its stand that both educational learning environments and technology are dynamic. Further, the current revisions of this framework provide specific guidelines to transform teaching and learning particularly by enhancing their knowledge, skills, and approaches towards technology [41].

These standards integrate many of the previous standards but give more emphasis on teaching colleagues, educator empowerment, data-based decision making, collaboration, computational thinking, media, and digital literacy among others [39].

Moreover, each standard is relevant to the expectation of educators in the 21st-century education system and be focused on the constantly evolving technological landscape of this era [32].

Despite the developing technological advancement and fast-growing access to the internet, the ISTE standards still reflect on how education evolves by aiming at the potential of technology to empower both the learning process and the teaching profession. These standards also sought to redesign its orientation from merely focusing on how teaching with technology occurs to actively using technology to empower students, collaborate, lead, and learn in technology-driven classrooms [36].

Through the advancement of technology, the attainable educational goals and improvement envisioned by the educators and other stakeholders of education are now more likely possible [29]. Over the past decades, a radical transformation in digital technologies proliferates and this is where students exercise greater control over how they learn while teachers have given a more diverse approach on how they will be able to deliver the content of their lessons.

However, in the Philippines, the limited effectiveness of distance learning might yield to greater account for learning losses and students disengagements due to the present COVID-19 crisis. Thus, this current situation challenges teachers across all levels to thrive and think of the possible solution to this enormous problem [7].

In this study, the ISTE standards are being equated to the "roles" of the respondents as teachers in a technology-driven classroom. Nonetheless, the primary questions for the teacher standards include how the standards will be applied and how learning opportunities, teaching skills, profession, and commitments can be shaped through these standards [10].

This study focuses on the respondents' reflection on their roles as teachers in technology-driven classrooms based on ISTE standards for educators. This study also emphasizes the

seven focal roles of teachers in the technology-driven classroom. Furthermore, the researchers of this study also examine the differences among the perceived roles of the teachers and their sex, age, status of employment, and length of service.

The lack of literary and scholarly works in examining and explaining these concepts in the local context has inspired this study to be conducted.

II. MATERIALS AND METHODS

To be able to gather necessary data, a descriptive method using a quantitative approach was employed since the primary purpose of this study is to determine and quantify the difference between the demographic profile of the respondents and their roles as stipulated in ISTE standards for educators.

Furthermore, the survey questionnaire with domains aligned to ISTE standards for educators' framework essentially determines the roles of teachers in the technology-driven classroom. The research instrument is structured to have two sections; (1) Demographic Profile of the Respondents and (2) The Perceived Roles of the Respondents as Stipulated in ISTE Standards for Educators. This survey questionnaire is designed in such a precise and concise manner as it was thoroughly validated by three field experts.

Out of the total population of this study which constitutes fifty-one (51) faculty members of PUP Quezon City, twenty (20) respondents were randomly selected and have successfully participated in this study.

For the statistical treatment of data, the frequency, percentage, weighted mean, and one-way analysis of variance (ANOVA) were computed to determine how this study will address its main statement of the problem.

III. RESULTS AND DISCUSSION

This study has more female respondents (14 or 70%) than the male respondents (6 or 30%) which is more probable to happen merely because the population where the sample size was drawn has an uneven number of male and female respondents whereas the female is greater in number. Most of the respondents' age falls under the bracket of 36 years old and above which constitutes 12 or 80%. In terms of the status of employment, a majority of the respondents are part-time employees (11 or 55%) while only 9 or 45% are regular employees.

Table I. The Scale of Verbal Interpretation

Mean (M)	Verbal Interpretation (VI)
4.00-3.00	Strongly Agree (SA)
2.99-2.00	Agree (A)
1.99-1.00	Disagree (D)
0.99-0.00	Strongly Disagree (SD)

To interpret the numerical results, the 4-point Likert scale response anchor was used whereas each scale provides the

verbal interpretation for each interval. This scale was utilized to interpret the entire domains or roles of teachers in technology-driven classrooms using ISTE standards for educators.

Table II. The Role of Teacher as Learner

LEARNER STANDARD	M	VI
1. I set professional learning goals to explore and apply pedagogical approaches made possible by technology and observe their effectiveness.	3.85	SA
2. I pursue professional interests by creating and actively participating in local and global learning networks.	3.9	SA
3. I stay current with research that supports improved student learning outcomes, including findings from the learning sciences.	3.85	SA
OVERALL MEAN	3.87	SA

Under the learner standard, the respondents state that they pursue professional interests, set professional learning goals, and stay current with research with the overall mean score of 3.87 verbally interpreted as “Strongly Agree”. By exploring new approaches to teaching, setting goals, and staying current on research-based best practices, teachers create lifelong learning [35].

Additionally, learning from and with others and exploring practices that maximize the use of technology in teaching continually improve the educators’ practice [36].

In the teaching profession, the educators must engage with professional practices that promote aspirations to learn and be not just stagnant with what they currently know and can do because everything not just in the education system is rapidly changing over time. One of these professional practices includes Continuing Professional Development (CPD). A study claims that pursuing further professional engagement and studies can contribute to the personal growth and development of an educator which is also a prime concern with teaching among universities and colleges [25].

Both teachers and students are considered to be learners and teachers at the same time. The teachers’ process of designing and enacting learning becomes a deeply reflective and considered endeavor. When such learning is supported by a shared pedagogical language and collaborative engagement, professional learning which later evolves and develops results in a culture of professionalism that emerges within the context [8].

Table III. The Role of Teacher as Leader

LEADER STANDARD	M	VI
1. I shape, advance, and accelerate a shared vision for empowered learning with technology by engaging with education stakeholders	3.7	SA
2. I advocate for equitable access to educational technology, digital content, and learning opportunities to meet the diverse needs of all students.	3.85	SA
3. I model for colleagues the identification, exploration, evaluation, curation, and adoption of new digital resources and tools for learning.	3.55	SA
OVERALL MEAN	3.70	SA

Table 3 presents the roles of teachers as a leader in the technology-driven classroom with the overall mean of 3.70 verbally interpreted as “Strongly Agree”. The result implies that the respondents from the Polytechnic University of the Philippines – Quezon City Branch pursue opportunities for leadership conforming to the ISTE leader standard to support student empowerment and attainment of goals.

Creating conditions to support continuous professional learning and enable students to participate and learn at a high level is the primary job of a leader-educator in the technology-driven classroom [40]. On the other hand, strengthening the leadership in the universities is important as well to support leaders and motivate them to work and promote their culture of quality and excellence to develop a policy and strategy that supports access to quality and excellence by reviewing the effectiveness of policies, adopting and updating strategies [17].

Teachers are considered natural leaders, as they exhibit leadership qualities in the technology-driven classroom, by propelling student empowerment and enriching their professional networks [35]. Students are more likely to use technology outside of the classroom, not all educators take advantage of this familiarity [24].

Furthermore, this standard has a plethora of interpretations coming from the perspective of different researchers. The teachers always continue to teach students but can extend influence on other people within and beyond their classrooms.

Teachers who exemplify leadership skills within the field of the teaching profession cause greater impact and real the power to make a difference in the lives of their students. The teachers who can turn their effective classroom practices into a shared vision that can help impel the education context within the school or even in the country at large can greater benefits to students and other stakeholders in education.

Table Iv. The Role of the Teacher As Citizen

CITIZEN STANDARD	M	VI
1. I create experiences for learners to make positive, socially responsible contributions and exhibit empathetic behavior online that builds relationships and community.	3.9	SA
2. I establish a learning culture that promotes curiosity and critical examination of online resources and fosters digital literacy and media fluency.	3.75	SA
3. I mentor students in safe, legal and ethical practices with digital tools and the protection of intellectual rights and property.	3.8	SA
OVERALL MEAN	3.82	SA

Table 4 reveals that the respondents have included the citizen standard in their teaching profession garnering the overall mean of 3.82 verbally interpreted as strongly agree. Specifically, the respondents strongly agree that they exhibit empathetic behavior online, protect intellectual rights and property, establish a learning culture that promotes critical thinking and foster digital literacy and media fluency, build up

experiences for learners to make positive, socially responsible contributions by safety, legality, and ethical practices with digital tools.

The context of citizenship is more complex whereas it consists of someone’s intimate knowledge of its community and its cultural history. The quality of a response to membership in a digital community is the same definition that may be applied to digital citizenship [21].

Preparing the students to be engaged and conscientious global citizens, especially in the technology-driven age is the primary goal of a meaningful education as both teachers and students empathize, respect, able to practice ethical and critical thinking and practice as well as take initiatives to protect their digital privacy [35].

The digital world is still the real world filled with real people. Without adequate education in citizenship, students can find themselves in dangerous situations online. Educators can help ensure students have a safe relationship with the other citizens in a virtual environment [24].

Some researchers emphasize in their studies digital citizenship is a necessity and is considered to be a global need [31]. As the education landscape abruptly changed due to pandemic, the extensive use of technology in education also takes place. In line with this, the transition of both students and teachers towards becoming digital citizens may take a long period of time and preparation which is basically uncultivated in academic research.

The concept of knowing digital citizenship becomes more significant and must be taken out of context nowadays. Teachers must understand that they have to ensure that their learners understand everyone’s rights and responsibilities linked to the use of technology [13].

Teachers act as a role model who serves as responsible, intelligent users of digital resources. Students must learn how to protect their privacy, exercise freedom of speech responsibility, and respect the intellectual property of others in a virtual environment [41]. These things must be under the scope of teachers’ clear instruction to learners on how to use technology in advancing their learning in a technology-driven classroom.

Teachers must responsibly take the initiative to hone the students into becoming future responsible digital citizens and practice ethical and moral approaches in an information-rich and technology-centric global society [37]. Hence, teachers themselves can only be able to do this if and only if they will embrace the context of being digital citizens in their profession.

Table V. The Role of Teacher as Collaborator

COLLABORATOR STANDARD	M	VI
1. I dedicate planning time to collaborating with colleagues to create authentic learning experiences that leverage technology.	3.6	SA

2. I collaborate and co-learn with students to discover and use new digital resources and diagnose and troubleshoot technology issues.	3.75	SA
3. I use collaborative tools to expand students' authentic, real-world learning experiences by engaging virtually with experts, teams, and students, locally and globally.	3.70	SA
OVERALL MEAN	3.68	SA

Table 5 shows that the respondents use collaborative tools to augment students' authentic learning experiences and consider themselves as collaborators in a technology-driven classroom with the overall mean of 3.68 verbally interpreted as strongly agree as they dedicate time for planning with colleagues and with students.

Collaboration in all teams could be characterized as ‘sharing’ [26]. Some researchers emphasize that the ability to work collaboratively is an essential component that can enhance teachers’ effectiveness and can positively influence the entire school community [18] [20]. However, in education, the conversation or exchange of ideas among teachers and students is the main existing form of collaboration.

The teachers who use collaborative practices will recognize greater gains in student achievement specifically based on the results, teachers’ level of collaboration is not uniquely related to student achievement [16].

In line with this, a study claims that groups formed by teachers are considered to be more effective in terms of influencing their individual beliefs about teaching and learning than characterizing strong forms of collaboration [1].

School leaders and teachers who work together promoted a culture of meaningful collaboration which is essential for having continuous school improvement by organizing activities that led to increased opportunities for quality teaching and student learning. Specifically, this study documented three main ideas that show collaborative practices among teachers and school leaders. One of these ideas states that teacher collaboration drives student learning to create strategies for increasing academic engagement while it supports improvement in teacher practice, data-driven instruction, and other students’ academic and non-academic needs [9].

Table VI. The Role of Teacher as Designer

DESIGNER STANDARD	M	VI
1. I use technology to create, adapt and personalize learning experiences that foster independent learning and accommodate learner differences and needs.	3.85	SA
2. I design authentic learning activities that align with content area standards and use digital tools and resources to maximize active, deep learning.	3.45	SA
3. I explore and apply instructional design principles to create innovative digital learning environments that engage and support learning.	3.7	SA
OVERALL MEAN	3.67	SA

Table 6 provides proof that the teachers also play as designers inside the technology-driven classroom as they strongly agree

to all underlying designer standards of ISTE for educators significantly having an overall mean of 3.67. The data implies that the professors of the Polytechnic University of the Philippines – Quezon City Branch are creating, innovating, and implementing different learning strategies to create high-quality academic standards with the aid of technology that supports both teaching and learning.

The way how teachers design works highly depends upon the recent technological developments that this age has to offer. Nowadays, teachers customize their designs through the use of technology. The word ‘design’ in this context is used primarily to include the process of mounting specific resources for teaching or learning purposes [22].

A study confirms that a design-based approach to professional learning provides new opportunities for the teachers to improve their practice and engage in collaborative design processes which can contribute to a sustainable and innovative approach to school improvement from the very start of their career [4]. The innovative pedagogies are a key part of teacher professionalism. Thus, these should build on the natural learning inclinations of students and must align with the teacher’s experience and skills [27].

Aside from establishing adaptable and appropriate learner-driven activities, it is also essential for educators to include innovation in designing such activities or assessments in a physical or virtual space to enhance the learning experience of the students. Some researchers assert that teachers should lead classes with more effective and innovative teaching methods [34].

Educators can meet the needs of all of their students and mobilize them to exceed the established standards through the use of various instructional strategies. This shows the importance of creating, adapting, and applying instructional designs or strategies (especially in this new educational landscape) that can be helpful to support and achieve high quality of education with the help of technology [7].

Table VII. The Role of Teacher as Facilitator

FACILITATOR STANDARD	M	VI
1. I foster a culture where students take ownership of their learning goals and outcomes in both independent and group settings.	3.75	SA
2. I manage the use of technology and student learning strategies in digital platforms, virtual environments, and hands-on marketplaces or the field.	3.75	SA
3. I create learning opportunities that challenge students to use a design process and computational thinking to innovate and solve problems.	3.7	SA
OVERALL MEAN	3.73	SA

Table 7 focuses on how the respondents perceived their roles as facilitators in technology-driven classrooms. The results show that the overall mean for this standard is 3.73 verbally interpreted as “Strongly Agree”. Thus the respondents

incorporate all facilitator standards in their teaching profession as stated in ISTE standards for educators.

A study defined a facilitator as someone who eases a process and ensures that the objectives or plans of the group are fulfilled by encouraging maximum participation of its members [2].

A facilitator of learning is a teacher who does not confine under the traditional context of teaching but rather typifies the one who guides and assists students in learning at their own pace.

With this role, teachers serve as bridges that help students deal with the effective use of technology and attainment of educational goals, as well as in coping with personal challenges and discovering their abilities. The gauges in this standard require teachers to establish a culture of responsibility among the students as well as to create innovative learning opportunities attached to the context of the design process [35].

As technology advances, the role of the teacher as facilitator changes as well. A study asserts that the definition of the role of the teacher as a facilitator shifted from merely a knowledge dispenser to a facilitator, then from a centralized to a decentralized authority, and from a star on the stage to a guide at the side [11].

Table VIII. The Role of Teacher as Analyst

ANALYST STANDARD	M	VI
1. I provide alternative ways for students to demonstrate competency and reflect on their learning using technology.	3.6	SA
2. I use technology to design and implement a variety of formative and summative assessments that accommodate learner needs, provide timely feedback to students and inform instruction.	3.7	SA
3. I use assessment data to guide progress and communicate with students, parents, and education stakeholders to build student self-direction.	3.45	SA
OVERALL MEAN	3.58	SA

Table 8 above shows that the respondents conform to the analyst standard of ISTE for educators with the overall mean of 3.58 which is verbally interpreted as “Strongly Agree”.

In teaching technology in the classroom, analysts are educators who contextualize and use data to mobilize their instruction and support students in attaining their desired learning outcomes. Part of this standard is the use of technology in designing various assessments and the provision of alternative ways on how students will reflect their learning in the large context.

In education, students are using technology in different ways. When technology is used to assess student learning outcomes, the results should be in a digital format so they can be easily accumulated. Thus, teachers can more efficiently determine how well the designed activities helped students achieve the desired learning outcomes.

Educators must delve deeper into the potential of technology as well as its effects on curating student assessments. Teachers should understand that assessments should be developed to support learning and there is a need to better understand how digital technology can be utilized to support and effectively transform assessment and learning.

Table IX. Overall Roles of the Teachers in Technology-Driven Classrooms Using Iste Standards for Educators

ISTE Standards for Educators	M	VI
Learner Standard	3.87	SA
Leader Standard	3.70	SA
Citizen-Standard	3.82	SA
Collaborator Standard	3.68	SA
Designer Standard	3.67	SA
Facilitator Standard	3.73	SA
Analyst Standard	3.58	SA
OVERALL MEAN	3.72	SA

Table 9 presents the overall mean of each domain in the ISTE Standards for Educators. Based on the results from above, teachers strongly agree that they consider themselves as learners (3.87), leaders (3.70), citizens (3.82), collaborators (3.68), designers (3.67), facilitators (3.73), and analysts (3.58).

These results support that the respondents of this study are not just conforming to the local framework of teacher standards particularly the Philippine Professional Standards for Teachers (PPST) but can also go along with the trend of international standards for educators as crafted by the International Society for Technology in Education.

Table X. Analysis of Variance (Anova) Between The Iste Roles of the Teachers in Technology-Driven Classroom and Their Sex Profile

ANOVA	Age	F-value	P-value	F crit-value	Remarks
ISTE Roles of Teachers	M	0.026	0.873	4.414	Not Significant
	F				

Table 10 clearly shows the Analysis of Variance (ANOVA) between the ISTE roles of the teachers in the technology-driven classroom and their sex profile. Specifically, as can be gleaned from the table, the F-value 0.026 does not exceed the computed F-critical value of 4.414 which denotes that there is no significant difference among the standards and the profile of the respondents.

Further, the result of P-value 0.873 is greater than the predetermined 0.05 level of significance in this study which fortifies the result of F-value and F-critical values.

Thus, the researchers of this study fail to reject the null hypothesis which entails that there is no statistical difference between the ISTE roles in the technology-driven classroom and the sex profile of the respondents. In other words, the

extent of ISTE roles of the teacher respondents in this study does not depend upon their sex profiles. The result implies that being a male or female teacher does not affect the performance of their roles in the technology-driven classroom while conforming to these international standards for educators about to this, the views of pre-service teachers on achieving ISTE standards do not differ on their gender [3]. Thus, the researchers of this study highly grasp the concept of continuity where sex profile does not make any impact of achieving higher level of ISTE standards of teachers from pre-service to in-service categories.

Table XI. Analysis of Variance (Anova) Between The Iste Roles of the Teachers in Technology-Driven Classroom and Their Age Profile

ANOVA	Age	F-value	P-value	F crit-value	Remarks
ISTE Roles of Teachers	≥ 25 y/o	0.964	0.486	2.915	Not Significant
	26-30 y/o				
	31-35 y/o				
	36-40 y/o				
	41-45 y/o				
	46-50 y/o				
	≤ 51 y/o				

Table 11 represents the results from the analysis of variance (ANOVA) between the ISTE roles of the teachers in the technology-driven classroom and their age profile. In detail, it is obvious that the F-value 0.964 does not exceed the computed F-critical value 2.915 which denotes that the difference between these groups is not statistically significant. Also, the result of P-value 0.486 is greater than the predetermined 0.05 level of significance in this study which supports the result of F-value and F-critical values.

Thus, the researchers of this study fail to reject the null hypothesis which entails that there is no statistical difference between the ISTE roles of the teachers in the technology-driven classroom and the age profile of the respondents. In other words, the extent of ISTE roles of the teacher respondents in this study does not depend upon their age profiles. Meaning to say, age does not affect respondents' role or performance in the technology-driven classroom while conforming to standards of the International Society for Technology in Education for educators.

Further, a 2019 study titled, "The Degree of Achieving ISTE Standards among Pre-Service Teachers at "the Public Authority for Applied Education and Training" found out that the age profile has nothing to do with achieving ISTE standards among pre-service teachers. Thus, simplifying the fact that being younger or older in the field of education does not even matter on this specific transition from being pre-service to in-service teachers [3].

Table XII. Analysis of Variance (Anova) Between The Iste Roles of the Teachers in Technology-Driven Classrooms and Their Status of Employment

ANOVA	Status of Employment	F-value	P-value	F critical-value	Remarks
ISTE Roles of Teachers	Regular	0.003	0.960	4.414	Not Significant
	Part-time				

As shown above, Table 12 denotes the results of the analysis of variance (ANOVA) between the ISTE roles of the teachers in the technology-driven classroom and their status of employment. In detail, it can be gleaned that the F-value 0.003 does not exceed the computed F-critical value 4.414 which denotes that the difference between these groups is not statistically significant.

Moreover, the result of P-value 0.960 is greater than the predetermined 0.05 significance level in this study which supports the result of F-value and F-critical values. Thus, the researchers of this study fail to reject the null hypothesis which entails that there is no statistical difference between the ISTE roles of the respondents in the technology-driven classroom and their status of employment. In other words, regardless of whether the respondent is a regular or a part-time teacher, it does not affect the conformance of ISTE standards they claim to practice in their profession under the context of the technology-driven classroom.

Consequently, there is a certain study that opposes the idea that the status of employment is somehow related to the achievement of higher professionalism or possessing higher teacher standards. Changing teacher employment relationships that are derived from education reform efforts enhances education quality and equity thus the most important change factors are likely to be financial and performance-related. In general, greater or less teacher employment security as defined will be determined by higher professionalism [30].

Table XIII. Analysis of Variance (Anova) Between The Iste Roles of Teachers in Technology-Driven Classrooms and Their Length of Service

ANOVA	Length of Service	F-value	P-value	F critical-value	Remarks
ISTE Roles of Teachers	≥ 5 years	0.578	0.683	3.056	Not Significant
	6-10 years				
	11-15 years				
	21-25 years				
	≤ 31 years				

As denotes in Table 13, the results of the ANOVA test of differences on the extent of the roles of teacher respondents in technology-driven classroom based on the ISTE Standards when grouped according to the length of service have no significant difference. As can be gleaned from the table, the F-value 0.578 does not exceed the computed F-critical value 3.056 and the result of P-value 0.683 is greater than the predetermined 0.05 level of significance in this study which

denotes and fortifies that the difference between these groups is not statistically significant. Thus, the researchers of this study fail to reject the null hypothesis which entails that there is no statistical difference between the ISTE roles of the respondents in the technology-driven classroom and their length of service. Simply put, the years invested in teaching do not signify that they delve into the higher or lower extent of utilizing ISTE standards on their profession when compared to others. The statistical results only prove that the high performance of the respondents in the technology-driven classroom does not rely on the length of teaching experience.

There is a need to develop alignment among the development performance standards, productive teaching experience, and school needs [28]. Furthermore, the research reviewed 30 studies as to how teachers can improve their competencies as they gain experience in the teaching profession and they found out that teaching experience is positively related to student achievements [23]. Thus, teachers who have a much longer length of service confer benefits to their students and to the school where they are working as a whole anchoring to the set standards.

IV. CONCLUSIONS AND RECOMMENDATIONS

Studies have shown that the quality of learning is reliant upon the quality of teaching. Thus, a teacher's competence has a great impact on how students acquire and retain essential learnings and skills from them.

In this study, it is significant to note that the respondents are conforming to the international standards for educators crafted by ISTE particularly as they resolutely consider themselves as facilitators, learners, collaborators, leaders, citizens, analysts, and designers in the technology-driven classroom. Thus, these serve as an indicator that the teachers can go beyond what is being required of them based on the Philippine Professional Standards for Teachers (PPST)—a local framework used to assess the competencies of the teachers. It is also notable that the roles of the teachers in technology-driven classrooms using ISTE standards do not depend upon the respondents' profile in terms of sex, age, status of employment, and length of service. The results further infer that there might be other intrinsic or extrinsic variables that could affect such attainment of international standards while practicing the teaching profession.

Presently with the upsurge use of technology, teachers gradually learn to grasp the concept of how technology can be integrated into the classroom. Though technology integration is reflected as a best teaching practice, there are still other things that must be taken into light such as how Information and Communication Technology (ICT) can further revamp the quality of learning and teaching.

In the locale of this study, the majority of the students prefer the online mode of learning but they experience poor/limited internet connectivity which hampers the quality of learning that they acquire. For that reason, this study suggests

improving the ICT infrastructure so that both teachers and learners can benefit from the best potential of communication and technology.

Since all ISTE standards for educators are being incorporated into the respondents' teaching profession, the researchers of this study suggest that the teachers must pursue Continuing Professional Development (CPD) and other professional engagements that can further upskill their roles, particularly on the four standards that have the lowest mean scores among others which include the leader, collaborator, designer, and analyst standard.

Along the same lines, the Commission on Higher Education (CHED)—as the responsible government agency as well as the University administration itself has to ensure the provision of sustainable technical support for teachers through various programs or initiatives to fill in the ICT skill gap and uphold professional development.

Since this is a pilot study, future researchers are recommended to employ the study on a large-scale basis. Further, examine the roles of educators in different levels and institutions and find out other factors such as how in particular the teachers facilitate the learning in technology-driven classrooms principally on their attitudes and competencies towards using technology in their profession that could affect the in-depth achievement of ISTE standards as this will make a firm generalization regarding the subject matter.

ACKNOWLEDGMENT

The authors of this study would like to thank their research adviser, Dr. Caroline Sumande for her patient instruction and passionate support during the planning and development of this study. The authors are also immensely grateful to Prof. Sheryl Morales for being one of the inspirations of this research work and also for extending her assistance for the publication of this study. Lastly, the authors would like to thank the PUP Quezon City Branch Director Edgardo Delmo who generously funded the online publication of this study.

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