What Supports Do Teachers Need on Effective Instructional Technology Integration?

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Abstract

Studies focused on school information-communication technology (ICT) integration roles mostly concentrate on principals' perspectives on their roles for an efficient integration plan. As ICT availability increases, the need for a practical integration plan covering more roles and aspects of dynamic ICT integration increases. There are studies on principals' perspectives on their roles in technology integration, but there is little information on how teachers view their principals' roles. It is essential that teachers feel supported so they are motivated to integrate instructional technology effectively. This study explores teachers' views on the roles and responsibilities that principals undertake to influence instructional technology integration in Title I urban schools. The roles and responsibilities of campus leadership in this study were aligned with the International Society for Technology in Education (ISTE) standards for principals. The findings reveal that educators' planning evolves around preparing students for the future. Three themes emerged in ten teachers' interviews from a Title I urban Texas school on their views of principals' roles and responsibilities in technology integration: (a) availability of ICT resources, (b) principals' support for ICT integration, and (c) planning for effective instructional technology integration. This study illustrates how the ISTE Standards for Education Leaders support implementing efficient technology integration in schools and preparing students to promote digital-age learning.

Keywords: instructional technology, instructional technology integration, information-communication technology (ICT), principal support, technology integration planning, teacher training

The information and communication technologies (ICT) use in formal education is often

assumed to have a positive impact on digital skills and 21st-century skills in general (Claro et

al., 2012; Fraillon et al., 2014; Voogt et al., 2013 as cited in Schmid & Petko, 2019). Several

studies point out that principals are responsible for ensuring effective instructional technology

implementation in schools (Anderson & Dexter, 2000, 2005; Bellibas & Liu, 2016; Sergiovanni,

2009; Yanyan & Fei, 2019; Wieczorek & Manard, 2018). The National Center for Education

Statistics (2010) supports this claim by reporting that the principal's role is crucial (Bellibas &

Liu, 2016; Raman et al., 2019) for a practical application of instructional technology in schools.

Furthermore, Sergiovanni (2009) claimed that ICT leadership is necessary (Bellibas & Liu,

2016) for all schools to increase the efforts on the use of instructional technology and goes on to

argue that principals' involvement in the implementation of ICT use involves three primary goals:

(a) leading/modeling ICT knowledge, (b) supporting/empowering teachers, and (c) planning for

technology integration. Moreover, Cherian and Daniel (2008) pointed out the importance of

principals to consider teacher voice in the development and implementation of instructional

technology integration plans to make it efficient.

Principals are equipped for ICT leadership, and ICT leadership requires specific roles

and responsibilities, including planning, promoting, supporting, and performing technology

literacy growth (Bellibas & Liu, 2016; Hitt & Tucker, 2016; Wieczorek & Manard, 2018).

Understanding what principals do in Title I urban schools about using ICT and exploring how

teachers view these actions may provide insight into ICT leadership for principals new to Title I

urban schools and existing principals to be conscious about their role as ICT leaders. It is

essential to point out that we know a lot about what effective principals do, but we do not know

how teachers are affected by principals' actions. Therefore, this research aimed to explore

teachers' views on school principals' roles and responsibilities in instructional technology

integration in Title I urban Texas schools.

Moreover, while many factors come into play regarding technology integration, this

research is focused on three specific areas, all of which derived from Collins' (2009) Technology

Leadership, Management, and Policy Pyramid. This pyramid includes three sides that focus on

organizational integration activities, planning activities, and maintenance activities. To keep the

study focused on exploring teachers' views on school principals' roles and responsibilities in

instructional technology integration in Title I urban Texas schools following research questions

have been posed.

The main question of this initial exploratory study is, "How do teachers view the roles

and responsibilities of school principals in the use of instructional technology in Title I urban

schools? That is followed by sub-questions narrow the focus of the research on specific

components of efficient technology integration.

1. What are instructional technology resources available to teachers?

2. What training and support are available to teachers?

3. What kind of support teachers receive from the principal?

4. What are teachers' views about leadership roles in effective instructional technology

    integration?

5. What barriers do teachers face for efficient technology integration?

6. What kind of support will help teachers to have a more efficient technology integration in

    place?

Purpose of the Study

The purpose of this initial small-scale study is to explore the teachers' views on the roles

of principals in instructional technology integration. The setting is a Title I urban school in

Texas. The aim is to generate a basis for further studies of teachers' views of principals and

principals' impact on effective ICT integration. As Somekh (2008) explained, teachers are not

free agents. Teachers' teaching methods and values mostly depend on the cultural, social, and

organizational settings they live and work (Buabeng-Andoh, 2012). As a result, learning

methods are necessarily co-constructed and implemented with students, faculties, and local

communities and restrained/enabled by education systems and cultures' regulative policies.

Literature Review

Today's students are comfortable with technology (Thomas, 2009); however, for

educators and students to fully acquire and benefit from ICT, its educational use needs to be

supported and modeled by teachers and school leaders. Sergiovanni (2009) stated that school

principals are the most influential change agents (Adams & Muthiah, 2020; Bellibas & Liu,

2016). According to Cuban (2001), one of the everyday situations in many classrooms in

Western countries is high access and low use. Although the recent survey results indicated that

schools in most Western countries enjoy high access to ICT, the percentage of teachers

reporting that they used it for teaching was comparatively low (Ertmer, 2005; Kozma, 2003; Law

et al., 2008). Also, a comparison conducted between two international surveys in 1998 and

2006 by the International Association for the Evaluation of Educational Achievement revealed

that computer and Internet access for pedagogical use has increased and that governments

have formulated a national policy and have invested heavily in teacher training.

Accordingly, technology integration needs to be implemented in a meaningful, practical

manner to realize its benefits. Educational leaders must work to reduce barriers to effective

instructional technology integration. Hence, ISTE standards (2018) frame this study since those

standards prescribe what principals need to produce a productive learning environment. The

standards begin with the leadership and vision to motivate a shared vision for the complete

integration of technology and promote an environment and culture to accomplish the vision. To

do this, principals assist in a shared vision with students, teachers, parents, and community

members (ISTE, 2018). Since principals are the most critical factor of efficient ICT integration in

schools' agents (Adams & Muthiah, 2020; Bellibas & Liu, 2016; Sergiovanni, 2009), principals

may benefit from this research to understand teachers' perceptions of their roles in effectively

integrate instructional technology in schools (National Center for Education Statistics, 2010).

Above all, Sergionvanni (2009) argues that teachers are more motivated to explore what

instructional technology resources are available to them. ICT provides more access to

professional growth and allows educators to converse with colleagues and experts in the field,

parents, and others outside the school building's boundaries. ICT leadership is necessary for all

schools as educational policymakers and administrators focus on increasing ICT use in the

classroom.

However, according to Wetzel and Zambo (2004), many school districts fail to provide

teachers and principals proper training. The National Education Association (2008) supported

this claim by stating that educators are not sufficiently prepared to integrate instructional

technology into classrooms and do not receive the technical support needed to impact student

achievement. Therefore, without continuous technical support, ICT integration in the classroom

is not satisfactorily achieved (Gahala, 2009). An international survey conducted in 2006 by the

International Association for the Evaluation of Educational Achievement revealed that the

perceived availability of technical, administrative, and infrastructural support was the most

constant positive predictor of teachers' use of ICT. When administrators offer emotional and

moral support by demonstrating interest in teachers' efforts to change the learning environment,

there is a willingness to incorporate more ICT in the student learning process.

Technology Integration

Furthermore, according to Casner-Lotto and Barrington (2010), a survey of more than

400 U.S. employers revealed that high school graduates are entering today's workforce are

deficient in most of the 21st-century knowledge and skills needed to achieve successful careers. Those problems that occur can be eliminated when administrators include teachers in the technology integration planning and evaluation processes. Administrators, teachers, and school district officials must work together to collaboratively develop an ICT plan that increases technology's efficient use across the school.

Also, Kervin (2010) argued that professional development sessions should be developed with a long-term purpose. The most critical tool principals need is a plan that is ensuring support in all levels of ICT integration. Presently, everyone is pulling in a different direction, and there is no movement regarding instructional technology integration. So, Green (2009) suggested leadership must establish a direction, and followers must follow. A well-assessed need and skill-focused ongoing training planning are necessary (McKnight et al., 2016) for a successful ICT implementation.

Additionally, technology implementation and distribution efforts do not automatically ensure the best interests of the instruction. Technology implementation is often little more than promoting painless technology installation without really changing the activities, processes, and outcomes of the learning environment; that is, technology implementation accommodates the installation of technology but does not improve the classroom environment for student learning (Warschauer, 2010). The ISTE (2018) standards (while not empirically validated, they are in widespread use) were used to frame this study to explore teachers' views on principals' actions about technology integration to compare the standards with what is happening on the field according to teachers. Hardre and Sullivan (2008) concluded that Title I schools use technology for remediation purposes or enrichment in the classroom. Warschauer (2010) argued that this technology use leaves students behind in developing the necessary skills to succeed in future endeavors.

Through extensive research on principals' roles and responsibilities for technology

integration for instructional use in classrooms, ISTE (2018) developed standards that are

currently adopted by 46 states in the United States, including Texas. These are derived from

five standards that demonstrate effective principals' integration of technology. ISTE standards

clearly define the roles and responsibilities of all stakeholders for successful ICT integration.

According to ISTE standards, principals identify, use, assess, and promote technology devices

to enhance a standards-based curriculum and attain higher student achievement levels.

Principals can benefit from the ISTE standards framework to facilitate and support collaborative

technology-enhanced environments conducive to improved learning. Mostly, administrators

develop, complement, and assess policies and guidelines to ensure compatibility with

technological devices. Principals assess staff knowledge, skills, and performance in

technological devices and plan professional development accordingly (ISTE, 2018).

Principals are decision-makers of the school, and the ones are planning instruction,

budgeting, and supporting staff to improve their practices. Sergiovanni (2009) suggested that

the most effective principals had a clear vision of how the school could educate its students, had

aligned resources and priorities with the vision, and could engage all stakeholders within and

outside the school to achieve the goals embedded in the vision. Moreover, the principals' clear

vision will help teachers to be able to know what is expected from them and how they can get

help to improve (Bellibas & Liu, 2016).

Similarly, Warschauer (2010) pointed out that principals' fundamental roles in their

schools' success point to other leadership characteristics critical to a principals' success and

teachers' instructional methods. Principals also make a difference in whether technology is used

effectively for teaching and learning. Effective school principals provide leadership, resources,

and ongoing professional development opportunities for teachers, setting the stage for

technology use supporting instructional change and student learning. As a result, teachers'

views on leadership roles and responsibilities on technology integration explored due to the

importance of principals' impact on effective ICT implementation.

Methodology

This research employed a descriptive research method to obtain information about

teachers' views of the principal's technological leadership roles and responsibilities for

integrating technology into the curriculum. Also, responsive interviewing was used for in-depth

interviews.

Sampling

The sample for this initial, small-scale, exploratory study included ten teachers from an

urban Title I school in Texas that promotes technology usage. This research's sampling method

was purposive sampling; ten teachers were a group of teachers who work at the same school

district as the researcher. The total teaching experience averages two to 21 years. Table 1

(below) summarizes information about teachers in this research.

Table 1: *Demographics of the teachers represented in the study.*

Student Group	Participants Name	Overall experience	Number of years in school	Formal technology education
Elementary	Ms. Amy	2 years	2 years	One basic computing course in bachelors' degree.
Elementary	Ms. Sims	10 years	8 years	None
Elementary	Mr. Davis	21 years	1 year	One basic computing course in bachelors' degree.
Middle	Ms. Crespo	4 years	2 years	None
Middle	Ms. Sally	8 years	7 years	One basic computing course in bachelors' degree.
Middle	Ms. Sirkel	17 years	3 years	One basic computing course in bachelors' degree.
Middle	Mr. Smith	5 years	2 years	One course of technology integration in master's degree.

Elementary	Ms. Silva	8 years	4 years	One basic computing course in bachelors' degree.
Elementary	Ms. Consuela	2 years	2 years	One basic computing course and intro to computer science in bachelors' degree.
Middle	Ms. West	11 years	5 years	None

Instrumentation

Semi-structured interviews were used due to their flexibility; the researcher was able to adapt the questions during the interview according to participants' responses to gather more detailed information. The interview questions for teachers were created after careful review of the literature and professors' input at the University of North Texas. The interview questions sought input about teachers' views on leadership roles on implementing instructional technology in the school and daily use of technology in the classroom.

The interview questions were created around the main research question:" What are teachers' views about leadership roles in effective instructional technology integration?"

Data Collection

Tracy (2013) suggested that researchers have responsibilities for building a reciprocal friendship for responsive interviewing, honoring interviewees with unfailingly respectful behavior. As a result of this suggestion, the researcher had talked to those teachers to build a relationship and helped them, as they needed, to build rapport with them even before mentioning the research. Moreover, Tracy (2013) stated that researchers should reflect on their own biases and openly acknowledge their potential effect and own the emotional impact of interviews. Creswell (2008) argued that the interview's dynamic nature allows participants to be more active than in a more structured survey. The opportunity to ask for more details during the interview allows the researcher to gather more information from primary answers and explanations. Also, the opportunity to observe, document, and interpret non-verbal interaction as part of a participant's feedback is invaluable during interviews. Participants were asked if they consent to audio

recording, so recording could be used to gather more details after the interview. The researcher

spelled out her tendency to focus only on verbal clues if she relies solely on notes. Hence, the

participants were encouraged to consent to the audio recording so that nonverbal clues,

environment, and environment interactions during the interviews could be analyzed during the

interview. The audio recording was optional for participants; all ten participants gave audio

recording consent, and a transcribing software program (Otter) was used to record the audio

during the interview process. Each interview lasted approximately 45-90 minutes.

This research relied only on in-depth interviews with teachers on technology integration

for instruction. This study employed descriptive research by utilizing teacher interviews to gather

information about teachers' perceptions of the principals' technological leadership roles and

responsibilities for instructional technology integration.

The participants were informed of the interview protocol, and interviews were recorded

and transcribed later. All information will be kept secure by the researcher to ensure the

participants' confidentiality. Teachers who voluntarily agreed to participate were selected to be

interviewed, and all participants are from the same campus to analyze and compare perceptions

of the same leadership. The research and the purpose of the research were explained, and

teachers were asked if they would participate in the study. The researcher sought official district

approval and IRB approval before conducting interviews.

Sample Profile

Each participant was given a pseudonym to protect participants' confidentiality.

Teachers' experiences as a teacher were two years to 21 years. One of the teachers took one

technology integration course during his master's program, and six teachers took an

introductory computing class during their bachelor's degree. The other three teachers do not

have any formal training on technology other than the professional development programs they

have attended. Teachers were motivated to seek informal training and self-taught instructional

technology. All teachers are working at the same school, and the same resources were available to them. Elementary teachers had five Chromebooks per teacher to use for stations and weekly one-hour computer lab schedules for all students' software time.

In contrast, middle school teachers had a cart assigned to them that shared among four more teachers. The school emphasizes STEM and technology, and the curriculum relies on supplemental software programs for intervention and enrichment of the students. Students have access to those instructional software programs at school and home.

These teachers are led by Principal Mr. Johnny (only pseudo-names used throughout), who is the school's ICT leader. He has started his educational career in this school system and has worked in different roles for about 12 years. He has been a principal for the same campus for the last three years.

This study is based on insights of the teachers gathered during the semi-structured interviews. Gall et al. (2007) claimed that interviews are used frequently in educational studies to gather data about phenomena that are directly observable, such as personal experience, opinions, preferences, and interests, as well as relationships among these phenomena. The data given by the teachers' interviews were analyzed to authenticate results.

Interviews were recorded and transcribed via the Otter transcribing software app. The interviews were recorded to collect data and transcribed to present an impartial view of the data. During the interviews, the researcher took notes and the audio recording of the interview in case the recording has any issues. The teachers were interviewed individually via Zoom, a video conferencing tool. Initially, the research was planned to have face-to-face interviews, but the COVID19 pandemic started, and schools closed. These changes led to a format change in the study from face-to-face to virtual interviews. Teachers were asked to use pseudonyms to join virtual interviews to protect their identities.

Data Analysis

Data from the interview questionnaire were analyzed to look for themes. Then, responses collected from interviews and data were analyzed to formulate conclusions. As Gall et al. (2007) suggested, themes and patterns were used to form categorical data. This study's outcomes were displayed in the descriptive narrative form to ensure the research's clarification and recognition. NVivo program was used to code and examine data for this research.

Coding allowed to review, contrast, and classify the data. The raw data were examined for relationships and differences, and primary conceptual categories were developed from interview responses. This approach allowed the researcher to formulate conclusions from the data analysis regarding teachers' perceptions of school principals' roles and responsibilities for instructional technology integration in Title I urban Texas schools.

Findings

Findings are provided here under subtitles that are created according to themes in teachers' views. Each subtitle discusses the results in detail and teachers' beliefs.

Teachers Analysis of the Roles and Responsibilities of Principals

Three main themes developed from teachers' interviews regarding the teachers' views on principals' roles and responsibilities in instructional technology integration: (a) availability of instructional technology resources, (b) principals' support for technology integration, and (c) planning for efficient instructional technology integration. All those themes were correlated to the ISTE standards for education leaders (principals). As an exploratory study, these three themes merit further scrutiny in future studies.

Table 2: *Comparisons of Research Questions, Themes, ISTE Standards, and Analysis of Teachers' Input.*

Research Question	Theme	ISTE standard	Teachers input theme	Teachers' quotes
Q.1, Q.5,	Availability of instructional	Principals (educational leaders); Ensure	-Outdated equipment	" Teachers will not be invested in training that they

	technology resources	all students have access to the technology and connectivity necessary to participate in authentic and engaging learning opportunities. (ISTE, 2018).	-Delay in the device distribution	know very well; they cannot even put into practice." "School does not have updated laptops for teachers." "I think it is the availability of devices itself is our major problem." "There are so many teachers that were without computers for quite a long time."
Q.4, Q.7, Q.8, Q.9, Q. 10, Q.11, Q.12	Principals' support for technology integration	Principals ensure that resources for supporting the effective use of technology for learning are sufficient and scalable to meet future demand. (ISTE, 2018)	-Service limitations in technology maintenance -Resistance to change -Lack of principal support	"The admin has been there for a while, and it is kind of like, well, this is our norm now, and it is apparently not going to change. So, why address it." "So, if devices are broken or in need of repair that they are not being repaired or replaced on time." "I really do not see much administrator support." "We need to make sure that somebody on campus is dedicated to helping resolve technology issues." "Nobody will do anything if they know there is not going to be the support there."
Q.6, Q.9, Q.10, Q.12	Planning for efficient instructional technology integration.	Principals ensure the integration of technology to support effective systems for learning, professional development, and organization (ISTE, 2018)	-Lack of proper need-based training -Teachers not being familiar with the resources -Delay in the device distribution	"If I were the principal, I would make sure my teachers are trained in the technologies they use." "I was not really trained." "We did not get student Chromebooks until one or two months in the school year." "I did not get the proper training, so I rarely use it in my classroom."

Teachers stated they believe the main barriers to efficient instructional technology

integration were: (1) lack of proper need-based training, (2) outdated devices, (3) lack of support

staff on campus to help and support teachers with technology integration, (4) delay in the device

distribution, and (5) service limitations in technology maintenance. Some issues emerged from

responses that are barriers for those resources to be used: proper training for the resource,

frequent changes in ICT being used, and teachers lacking familiarity with the resources.

Instructional Technology Resources Available to Teachers

The main research question and sub-questions guided the study by gathering essential

supporting data from teachers on their views on school principals' roles and responsibilities on

implementing instructional technology in Title I urban Texas schools. To the first sub-question

on what instructional technology resources are available to teachers and what training and

support teachers have, Ms. West responded: "The biggest barrier to me was the age of my

laptop computer. They are not getting fixed at all. Some of our Chromebooks (student devices)

had missing keys. So, there is no regular maintenance going on for student devices. I do not

think the person who oversees all the computers and technology instructor has the staff to keep

up with that demand." Teachers' responses demonstrated instructional technology materials

available to teachers as part of the school's vision of technology and STEM. However, using

these resources is not efficient due to the lack of data collection on how these resources are

being used and the issues teachers are facing.

All participant teachers stated that they have many technology resources in class, such

as laptops, document cameras, projectors, chrome book student devices, and many

supplemental software programs. Teachers stated that those resources are essential to keep

up with the changes of the century. Ms. Amy reported: "Teachers are not going to be effective in

the use of technology without the support from admin, without the support of the actual training,

and without the support of having working technology. Furthermore, I know that our campus has

many teachers who do not feel that support. So, then it feels like it is a lack of importance. Also,

I have heard of this incredible technology, but I do not have Chromebooks in my classroom. So

how am I supposed to do technology or, you know, I am trying to get my computer to work, but it

is not working at all. So how am I supposed even to put this up to do this with it? Teachers are not going to be effective in the use of technology without the support of the principal, without the support of the actual training, without the support of having the technology that's working or the technology that's in the classroom."

The only concern regarding resources was that the campus keeps changing the resources they use, and sometimes it happens without training teachers. Ms. Sims stated, "every year we get a new program. So, every year we had to learn something new, so programs are changing too often. It is like even if you are training yourself, how to navigate the program or the software. Then, a year or two later, you are getting a new one. There are so many different reading programs that we have started and then, and then the next year it is a new one. We have all these software programs available to us, but we do not always know how to implement them. The idea of them sounds great, but then when you are actually in front of the computer in the computer lab, we do not always know [exactly] what to do." Ms. Amy stated, "honestly, as a teacher, you have so much that is going on, then that falls to the back burner if you do not know exactly what they want out of it. Like what can it do? And where is that even located."

Most of the teachers noted that if a teacher wants a whole class to work on an activity using chrome books, they were available. The cart of Chromebooks could be signed out, and the computer lab could accommodate almost a class of students when signed up for by the teacher at the beginning of the year. Overall, teachers believed that their school is technologically equipped to keep up with technology development changes that bring out everyday life and other schools. However, they have issues with devices because they become outdated, and it takes time to update them during the year. Ms. Sims noted:" if devices are broken or in need of repair, they are not being repaired or replaced on time. If the teacher requests IT help, the request is not being answered on time. There are so many teachers that were without computers for quite a long time that, you know, how can we implement technology

in the classroom and not even the teacher has not one available to her or his disposal. So, I

think, just [it is] accountability. Overall, making sure we hold our students accountable or

teachers accountable, and that must come from the top, because if we allow people to get away

with things, unfortunately, they do, you know, not everyone has that integrity."

Proper Need-Based Training Opportunities for Administrators and Teachers

According to teachers', lack of adequate training seems to be the most common theme

among these teachers' views for technology usage. Each teacher receives training as the

campus decides to start using a new program. However, these trainings are mostly occurring

with a big group of teachers and are not differentiated by the teacher's needs and goals.

Teachers did not find it efficient since teachers are at different levels of technology usage

literacy. Ms. West reported:" you did not just get kind of tossed into it, and we are expected to

know these things already. We do have training at the beginning of every year to make sure that

we understand how to integrate because there are specific grading programs that we must

know. She also added that "I need school principal to understand that every teacher has their

own specific needs, and everyone is different so their needs."

Some teachers said even they had received the training, they either self-taught the

program or ask their colleagues whom they know are good with technology to help them.

Another teacher, Ms. Amy, stated that some of those training is just to learn the basics,

basically, then you know once you learn it, then maybe having another training showing some of

the more in-depth things that it can do or that you can use it for, but also just making it clear for

the expectations of why we are doing it would help her to use these resources more efficiently.

Ms. Sims stated that she did not use most of the available resources since she did not know

how to use them. She also stated that she had a SMARTboard available to her, but she did not

know how to use it. She stated that she tried her best but never officially got any training on how

to use it. Moreover, often she was the one person who had to set it up as well."

Principals' Support in Technology Integration for Teachers

Teachers stated they were surprised to be asked what support they receive from their

principal. All teachers thought that if they needed help with any technology, they either asked

their grade level team or IT person to help them out. Teachers stated that technology integration

is something that has been brought up during teacher evaluations. Ms. Amy reported:" I would

say that is something that's on our evaluation but then, during a regular day, like I said I have

five Chromebooks in my classroom, so it is not much of support, in the sense of it being there,

so I do not know the budget for the school. If it is essential, then I think that it should become

part of the budget." Ms. Sirkel reported the support she receives from campus leadership

depends on the administrator she asks for help. She noted:" it depends on the administrator. I

think some administrators are very quick to not listen to your problem and just say go to the IT

person. However, there are other administrators that are well let me see if I can help you. And

then not just referred to the IT person, you know, and I think that could also be because maybe

different administrators are more comfortable with the technology than others."

Ms. Sims noted:" I mean, technology is there, but they are not supporting us on being

trained for it or implementing it. Moreover, they are not really supporting us and making, sure

enough, technology is available. I really want to be put the technology into the students' hands.

However, it is just not available, so I will just have a conversation about that. And then, you

know, as always. "Hopefully, we can do something about that maybe next year we will get

more," quoted principal, but, you know, eight years into it, I still have not seen technology being

integrated the way I would like it to be into my classrooms." All teachers stated they feel bad

about asking for IT help since everybody relies on him, including administrators. Hence, they

avoid asking for help and choose not to use the technology.

Planning Technology Usage in the classroom

Teachers stated that if they do not ask for specific issues to be fixed with their devices or

let someone know they need help with technology integration, nobody would know there are

issues with technology integration until teacher evaluation. Some teachers brought up; they

have had problems for a long time, which causes them not to use technology in class for one

month to two months. All teachers stated they received the student devices two months after

school started, and by then, they already had a system in place, so they did not use the devices

as much as they would if they had them at the beginning of the school. Ms. Sims stated: "I do

not even know who our IT guy is; I was never introduced to him; I just heard a name and was

told to make an IT request with any issues. So, I think it is important that all teachers have some

sort of relationship with that person, just like be at least being introduced to this person so that

you feel comfortable enough to reach out to him or her and to know that they can help solve

your issues or they want to."

Ms. Sims stated if she were the principal: "I would train my teachers about technology,

and then I would follow up with it, like, here is our IT person so he or she also knows about this

technology or the software and has been trained so if you have questions throughout the year

go to him or her, they will be able to help you. Because often, if I do not think this person would

even know anything about this software or this program that I want to implement." She also

added that:" I think it also not just giving a training but also following through like following up

with teachers. Thus, when you go in for those observations, you know, the teachers have had

up the technology training, or the training on the software, you should be able to walk into the

classroom at any time and see it being implicated, and not just forget about it, because often I

feel like we have had excellent training. However, then we are not kind of held accountable for

how we are implementing in the classroom."

Summary of Findings

The teacher's view of principals' roles and responsibilities presented three themes about principals' roles and responsibilities: (a) ensuring availability of ICT resources for instruction, (b) support teacher on ICT integration, and (c) planning for efficient ICT use in the classroom. Teachers' views on the principal's roles and responsibilities for the ICT depended on the technology available to support learning and planning with the principals on what is needed to ensure efficient ICT integration. The maintenance of technology devices was a significant barrier encountered by all teachers. Technology maintenance personnel workload was an issue that caused delays in the maintenance of devices in the school that participated in this study. As a result, if technology devices do not work, teachers cannot use them in class. Technology devices that do not work often cause changed classroom instruction that may not be as efficient for the students. Hence, teachers believed it is the principals' responsibility to ensure all technology works before school starts.

Teachers stated that they experienced issues when technology was provided to them without any support from the principal or a need-based focused training, which the principal should have planned before technology was provided or school started. Trying to learn to use the technology while trying to teach was overwhelming and resulted in decreased use of technology and decreased teacher motivation. For instance, SMART boards were installed in classes in the middle of the year without any support or training, which resulted in them being used as an overhead projector. Buabeng-Andoh (2012) points out the importance of teachers' professional development as a critical factor (McKnight et al., 2016) in successfully integrating computers into classroom teaching.

Moreover, according to teachers, some ICT devices are out of date; the principal did not ensure all devices are up to date and running before the school's first day. Teachers agreed that planning for technology was imperative, and it is the principal's responsibility. All teachers had

similar concerns, such as the availability of technology resources, lack of principal support, and lack of planning at various levels.

To summarize, the main findings are that teachers perceived that the main barriers to instructional technology integration were: (1) lack of proper need-based training, (2) outdated devices, (3) lack of support staff on campus to help and support teachers with instructional technology integration, (4) delay in the device distribution, and (5) limited-service in technology devices maintenance. Teachers in the study believed that technology integration is not a priority for their principals.

Summary of Conclusions

The main question of this study was, "How do teachers view the roles and responsibilities of school principals in the use of instructional technology in Title I urban schools? One of the ISTE's (2009) standards related to this question was the vision of instructional technology integration that principals demonstrate in planning. Teachers who participated in this study stated they believe that planning was imperative for efficient technology integration (Wieczorek & Manard, 2018). Cherian & Daniel (2008) pointed out that the increase in technology usage in schools increased principals' need (Bellibas & Liu, 2016; Wieczorek & Manard, 2018) to ensure an efficient instructional technology implementation and planning for their schools to keep up with 21st-century learning environments. All participants believed that planning was a significant or maybe most important step in integrating technology. They brought up that lack of planning was one of the obstacles they have for efficient technology integration.

Another ISTE standard analyzed involved curriculum design, instructional approaches, and learning environments to integrate the relevant technologies for the best learning and teaching environment possible (ISTE, 2018). As ICT leaders, principals are responsible for preparing and supporting teachers for instructional technology integration (Bellibas & Liu, 2016;

Wieczorek & Manard, 2018). Also, principals are responsible for assuring that technology

devices are ready to be used before school starts and provide ongoing support throughout the

year by hiring IT staff. All the teachers in this study stated they used instructional technology to

enhance student learning daily. They needed their principal to support them (Wieczorek &

Manard, 2018), and they believed that they could not integrate instructional technology

efficiently without this type of support.

Kervin's (2010) suggestion that professional development sessions should be developed

with a long-term goal reminded us of the importance of efficient and well-planned training

(McKnight et al., 2016) sessions for all teachers. Teachers believed that it is the principal's

responsibility to plan professional development sessions according to teachers' needs and

efficacy with ICT. According to the teachers, the principal made sure teachers were trained for

instructional software, but training was held in big groups with different teachers' ability groups.

ICT provided students data for teachers to intervene, reteach, or enhance the lesson. Teachers

stated the immediate feedback and ability to get assessment results are one reason they use

technology in instruction. Teachers reported that they had not received any training on

technology devices, and nobody would check on them to see if they need help with any ICT

they have in their class.

The findings demonstrated that those teachers do not perceive that their principals see

their instructional role even though that is essential for reliable instructional program

implementations. The data analysis shows that participants believed that extensive planning has

a critical role in efficient instructional technology integration. Analysis of the data classified

themes from participants that overlay, reinforcing school principals' importance on efficient

instructional technology integration. As pointed earlier, planning for technology integration was

the central area identified as increasing technology integration efficiency. All participants

believed that the school principal is the primary person responsible for preparing all

stakeholders for efficient technology integration (Wieczorek & Manard, 2018).

Teachers reported that they had professional training to learn the use of technological

software in everyday instruction. They attended professional training and felt that the training

groups were big, and it felt it is getting done just because the district requires it. A future

research can focus on principals' purposes when planning for professional development for their

teacher to gather data and compare that data with teachers' perceptions.

Principals indeed are the most crucial element for effective instructional technology

integration (Raman et al., 2019; Yanyan & Fei, 2019). The principal's vision affects the whole

school environment. Therefore, this study can assist educators, policymakers, and

administrators by highlighting principals' roles and responsibilities for efficient instructional

technology integration and pointing out teachers' perceptions of the importance of principals'

roles. This can increase awareness of principals' views on the importance of their roles and

responsibilities on ICT.

As we are experiencing the COVID-19 pandemic, most of us saw the pandemic as an

opportunity to finally integrate technology in education; however, teachers and parents

experienced unplanned technology integration that might decrease educational technology

usage motivation for educators. On the other end, teachers might feel more courageous to keep

using some resources they have had a good experience with. Administrator support is essential

now and after we are back to regular face to face instruction to help teachers and families get

back on their feet. Schools do not need to focus on developing new plans for any new

technology integration. All stakeholders need to sit back and feel the Pandemic is over and

ready to be back to normal. Teacher support will need to be a priority for schools to support

teachers and students in overcoming the stress and difficulties caused by the challenges they

faced during the Pandemic.

This study was brought up with the hope of shedding light on teachers' perceptions of the importance of leadership practices for technology instruction (Yanyan & Fei, 2019; Wieczorek & Manard, 2018). Britten et al. (2009) pointed out that principals must be aware of the importance of their role in promoting definite changes for students who will perform in the 21st-century society of growing technological inventions. Therefore, teachers' views on school principals' roles and responsibilities were investigated to provide insight into schools' technology leadership. Being aware of the importance of principals' instructional technology role and taking responsibility for it can help solve the issue pointed by Cuban (2001) that western countries are not using technology efficiently than the technology available to them. This research supports the importance of efficient implementation of the instructional technology leadership role and the impact of following ISTE standards. Further studies can focus on how implementing ISTE standards can improve ICT usage in schools.

Limitations and Future Research

To focus on the teachers' views on principals' roles and responsibilities for instructional technology integration in Title I Texas urban schools, interviews were conducted with Title I urban teachers who volunteered to participate. Research data was gathered from ten teachers only; campus leadership's perception was not included. Also, this study solely relied on in-depth interviews with teachers on technology implementation for instruction. The primary limitation is the small sample size and use of only one school. As previously stated, the goal was to identify factors to be explored in more depth in future studies.

Future research should gather data from teachers, principals of several schools and district administrators, and perhaps from students and parents to compare perceptions to see gaps and similarities of perceptions to explore how a more efficient technology integration plan that considers all stakeholders and compares these data to ISTE standards for each stakeholder. Active leadership for principals in integrating ICT should be a priority for students'

education and prepare them for skills they will need in the future. Therefore, principals'

necessity to expand their awareness and understand how to integrate ICT efficiently should

employ ensuring the most effective use of ICT to support all learning environments.

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Appendix 1. Interview Questions

What are teachers' views about leadership roles in effective instructional technology

integration?"

The sub-questions listed below guided the study:

1. Describe any formal technology education you have had.

2. How many **y**ears of experience do you have as a teacher?

3. What technologies are available to you, and what technologies do you use during

instruction?

4. What are your goals you plan to reach by using the technology in class?   What is your

motivation for using ICT instead of lecturing?

5. Who do you have as a support for technology use in your classroom?

6. How do you integrate technology into instruction?

7. What do you see as barriers to your technology integration?

8. How do you get support from your administrator on technology integration?

9. If you were the campus principal, what would you do to support teachers with technology

integration?

10. What could be done differently to support you in integrating technology more efficiently?

11. Tell me more about how the campus administrator can help and support you with

technology integration?

12. What kind of support will help you to have a more efficient technology integration in place?

13. What did you feel was the most important thing we talked about today, and why?

14. Is there anything you would like to add, or is there anything you feel I should have asked,

and I did not ask?