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## Exploring School Leaders' Experiences Allocating Financial Resources to Support Technology Integration Learning

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# Walden University

College of Management and Human Potential

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Joshua Wayne Armstrong

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Walden University

2025

Abstract

Exploring School Leaders' Experiences Allocating Financial Resources

to Support Technology Integration Learning

by

Joshua Wayne Armstrong

MS, Lindenwood University, 2018

BA, Westminster College, 2007

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

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## Abstract

America's local education agencies (LEAs) often struggle with technology integration learning (TIL). There is a lack of understanding about how leadership is planning and financially managing the allocation of budgeted dollars to support TIL. The purpose of this phenomenological study was to explore the lived experiences of public school leaders involved with financial management and the planning of resources to support TIL. Mishra's and Koehler's technological, pedagogical, and content knowledge framework grounded this study on how leadership planning and financial management affect teachers' technological skills and professional development when incorporating TIL in public schools. Data were collected through 11 semistructured interviews using a purposeful criterion sample of Missouri public school leaders. The meaningful statements bracketing resulted in 219 statements of relevance categorized into seven themes through thematic analysis. The findings indicated that planning and budgeting resources, leadership and environments, and collaborative spending and training positively contribute to TIL. The emerged themes were synthesized into the TIL Connection Cycle, encompassing three focal areas: (a) planning and budgeting resources, (b) leadership support and environments, and (c) collective spending and training. These three pillars may create a solid foundation for TIL's success. The implications for positive social change include the potential for public school leaders to implement the three focal areas that could challenge traditional learning methods, lead to adaptive technological advancements, and enhance the students' learning experiences across America's LEAs.

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## Chapter 1: Introduction to the Study

Communication among society is faster and easier today than ever before because of technological devices, such as phones, laptops, and personal computers. These devices use programming software to facilitate human engagement and foster interactions between individuals. People can instantly connect with friends, family, and coworkers with a simple touch of a fingertip. However, when it comes to educating students with technology applications, public school systems in America have been lacking (Hill & Uribe-Florez, 2020). Technology integration in K–12 classrooms has increased across the United States, but teachers face barriers in improving student learning experiences due to a lack of understanding and training in technology integration (Hill & Uribe-Florez, 2020). Better management of public-school resources could increase technological skills and benefit educational experiences for students.

Ekatette et al. (2019) conducted a study to examine school fiscal management and found that schools have adequate sources of available funds but lack any formal structure when allocating resources or measuring leadership accountability. In the 21<sup>st</sup> century, the percentage of public-school students using technology devices for educational purposes has been increasing; however, most public-school leaders have not established proper budgeting procedures or allocated financial resources to support technology integration learning (TIL; Ekaette et al., 2019).

To understand how school leadership affects the financial management and planning of TIL, a phenomenological qualitative study was conducted. Semistructured interviews gathered firsthand, in-depth information from school leaders with at least 5

years of experience in integrating TIL (Palinka et al., 2015; Ravitch & Carl, 2020). Culture and environment play a significant role in shaping students' and teachers' attitudes towards technology-based learning exercises (Kalimullina et al., 2021; Zhao & Song, 2021). Dwangu and Mahlangu (2021) found that while the Department of Education (DOE) has designed internal controls to hold principals accountable for financial management decisions, these controls do not fully ensure accountability or impose consequences for failure.

Accountability is the belief that answerability is required to manage expectations and work in good faith towards achieving organizational goals (Dwangu & Mahlangu, 2021; Eriksen, 2020). Management is a process that involves overcoming obstacles to achieve goal objectives and requires critical problem solving (Scott, 2017). Leadership is defined as a goal accomplished by followers through the communication of a leader, who serves as a source of inspiration and motivation (Raziq et al., 2018). These definitions emphasize that leaders are accountable for their management decisions. Organizational monetary management entails employees who have knowledge of basic financial analysis, can make sensible decisions, and can manage financial resources for accomplishing organization goals (Purtell & Fossett, 2018).

Public schools are issuing technology devices to students and integrating learning activities focused on educational materials (Lalani, 2020). To operate this process, school leadership should have a comprehensive plan in place. Contingency planning is necessary throughout a fiscal year; however, an initial plan allocating financial dollars is the starting

point when managing technology integration expenditures (Missouri Department of Elementary and Secondary Education [DESE], 2024).

The DOE (2024) has launched a school infrastructure initiative, committing to spend \$50 billion dollars on technology integration expenses over the next 10 years. School leadership will be accountable in allocating these funds to support technology learning, and it is imperative that leaders know how to use these resources advantageously. Educators require technological skills and training to successfully implement technology-based learning, and school leadership must build a culture supporting TIL learning activities (Johnson, 2020).

The physical equipment and software associated with technology use, along with professional training costs, logistical costs, and shipping/tracking of equipment, will be costly. Creating a technologically skilled staff will take money for training programs and software services, and other ancillary expenditures such as taxes will affect the allocated dollars supporting TIL. A way to alleviate improper allocation of funds would be leaders developing plans focused on the financial management of resources to support technology teaching objectives. The United States has seen an increase in K–12 educational technology use by 363% since 2014 (Bass, 2021).

The allocation of funds by leaders directly relates to technology integration spending in a fiscal school year. By 2015, the United States had spent 4.7 billion dollars on instructional technology integration, with little evidence showing the overhaul of technology spending to be effectively working (Bass, 2021). A technology finance plan created by school leaders could create accountability and measurability when it comes to

implementing technology integration, leading to positive social change around students' learning experiences.

The first chapter of this study contains background information about the topic and the problem being explored. Also included are the purpose of this study, the research question being asked, and the conceptual framework being used to visualize the importance of school leadership and financial management regarding TIL in classrooms.

New 21<sup>st</sup>-century technologies such as artificial intelligence (AI) will reshape educational experiences in America, and future leaders will play a pivotal role in how school systems adapt and spend money to support these technologies (Pence, 2020). As smart classrooms arise in public-school systems, and personal mobile devices become normal, school districts will experience initial costs plus continuous costs, such as device maintenance, device logistics, and device software expenses (U.S. DOE, 2024).

A collaborative environment could stimulate intelligence amongst participants by giving members the capabilities to absorb new knowledge derived from each other (Raziq et al., 2018). School systems need leaders who want to create technology-driven environments capable of successfully implementing technology integration projects. School leaders will have to create a culture of educational experiences geared towards technology learning in classrooms, which is the use of technology devices by students and teachers for interactive learning activities (Markson & Forman, 2021).

Completing such a transformative project will take transformative leadership, along with financial resources to support the costs associated with technology-dominant environments. In my experiences auditing public school districts in Missouri, the

financial management of school resources has been overseen by an elected governing body of seven board members, which makes up a school district's Board of Education (BOE). The BOE is responsible for the organizational hiring of management along with the financial management oversight of the district, assuring that the short and long-term obligations of the organization are met.

Public school districts are viewed as community pillars that support children learning until age 18. Many community members have children inside these public-school districts. Eventually, students graduate and either continue education at the next level or join the American workforce (Bransberger et al., 2020). American businesses rely on schools to provide them an educated workforce capable of helping their organizations be successful and improving communities (Bransberger et al., 2020).

A project to revamp and improve TIL in these school systems will take transformative leadership at the school managerial level. Financial management structuring within these organizations must be revived to reflect technology learning goals described by the U.S. DOE.

Conducting a study that reviews leadership and financial management around technology integration became a topic of interest during the COVID pandemic, and I chose to research this topic to examine barriers that public schools' systems face when it comes to implementing TIL. By interviewing school leaders with TIL experience, I sought to help future leaders benefit from their past experiences, creating positive social change surrounding student learning experiences. Future school leaders could learn



useful information from a phenomenological study gathering firsthand experiences around the financial management of TIL.

Chapter 2 contains information from various sources of literature reviewed prior to conducting the research. Diverse types of learning environments, techniques, and financial management approaches will be discussed in detail. Byers et al. (2018) discussed how traditional learning classrooms compare to innovative learning environments (ILE), along with the effects on teachers and students' experiences. Yuliantoputri et al. (2019) described how schools create smart learning environments (SLE), which impact teachers in a positive manner and are shown to enhance student learning experiences.

The literature review is provided to explain research related to the topic, and how a gap was identified to conduct a study regarding school leadership and financial management practices surrounding TIL. Additionally, in the second chapter, an explanation of the conceptual framework is provided. In Chapter 3, I provide the methodology used for this phenomenological approach and why it was chosen to answer the research question.

My role as a researcher is discussed in the third chapter, along with a description of the data collection process and the data analysis plan. A portion of the third chapter is dedicated to the trustworthiness of my research, followed by a summary of the research methodology plan. Chapter 4 consists of the research results, and common themes, which explain the data analysis findings. Chapter 5 contains the study's summary and suggestions for future research related to this topic.

## **Background of the Study**

The focus of this study was an investigation of financial management and allocation of resources by school leadership supporting TIL. Exploring monetary management processes could lead to social change inside public-school education environments, and lead to new ideas successfully facilitating TIL. To successfully achieve TIL implementation, schools must provide teachers and students with adequate equipment. Based on the outlook report created by the U.S. DOE (2024), it is committed to spending 50 billion dollars for technological upgrades to public education systems across America. Technological capabilities, including equipment, software, infrastructure, and fiber optic connectivity, will be upgraded, changing the way students and teachers interact during learning activities (DOE, 2024).

Engineering these types of upgrades will create inevitable change to the 21<sup>st</sup>-century educational landscape. Holding school leaders accountable during this disbursement of funds towards technology advancements should include a measurable metric, or a governing body providing fiscal management oversight. Oversight and monitoring financial resources are key controls to deter fraudulent activity and will moderate risk for organizations (Tkachenk, 2020). If more attention is spent on monitoring technology spending, a positive effect may occur, benefiting student learning experiences.

Through this phenomenological qualitative study, I sought to answer questions regarding barriers and openings public school leaders encounter when implementing TIL. Managing the DOE's elaborate and innovative project to enhance technology in public-

school districts will take proper financial management decisions by leadership. The U.S. DOE needs school leaders capable of managing financial resources in an efficient and effective manner. A culture of technology use will take planning of finance dollars by school leaders. Budget allocations should outline technology integration spending expectations in public school organizations.

Case and Harris (2014) conducted a case study of 22 school districts regarding financial management of technology and found from the collective group analysis that the strongest technological groups included systemwide computer labs, clusters of computers in classrooms, and convenient rolling carts for laptop checkout. Weaker groups in the study were found to have the highest per-pupil funding, lower efficiency, and uncondusive environments with minimal technology integration (Case & Harris, 2014). This information is a way to understand the importance of surrounding students with technology, giving them opportunities to interact with devices. This study included an examination of how spending habits inside public school systems are managed.

With proper planning and allocation of resources to improve TIL management, leadership could improve student learning experiences. By creating a school environment promoting student engagement with technology devices, a school system could enhance its processes driving TIL. These types of changes may lead to positive social change, creating better learning environments for students.

A gap on how to finance and allocate resources for technology integration exists, and researching this phenomenon may help in finding innovative ways for successful TIL. One idea to help facilitate technology learning in classrooms is putting financial

responsibility on the teachers themselves. Horn and Goldstein (2017) expounded on this idea that teachers are most aware of a student's needs and technological abilities, and therefore, putting the purchasing power with them could enhance technology learning for students.

My conceptual framework focused on planning and financial management developed by leadership to support successful TIL. This study was needed to examine ways in which leadership planning and financial management influence the implementation of TIL. Technology evolution allows for teachers to use information and communication technologies (ICTs) in conjunction with traditional learning to create better critical and reflective thinking skills amongst students (Carrion-Martinez et al., 2020).

Raziq et al. (2018) conducted a multiple-case study consisting of in-depth interviews and document analysis, and they identified three conditions shown to integrate ICT use successfully. These three conditions are (a) the quality and quantity of devices available to students and teachers, (b) the culture within a school organization based on rules and expectations, and (c) the teachers' understanding and ability to use technology. Creating a culture within an organization starts with leadership style and outlook. Transactional leadership style, also known as active management style, is a micromanaging approach limiting employees' decision-making abilities (Hansen & Pihl-Thingvad, 2019). Transactional leadership is found to be less effective in enhancing employee commitment and performance, and it leads employees to quit organizations (Hansen & Pihl-Thingvad, 2019).

School managers leading by example may inspire teachers to take opportunities and use technology how they see fit. This action could spark a change in the organization's technological culture. A transformative leadership style is appropriate to motivate followers to reach their potential, while still leaving room for errors, and a healthy work-life balance (Hansen & Pihl-Thingvad, 2019). School leaders being transformative managers could influence students' learning experiences in a positive manner, creating social change across public school districts.

### **Problem Statement**

The issue that prompted my study was the challenges school leaders incur when trying to implement TIL in public school systems. Searching the literature, I discovered that public-school leaders face planning and financial management problems when it comes to managing TIL.

The costs associated with TIL have been increasing with new technology devices and software advancements (DOE, 2024). Many public-school educational systems are lagging when it comes to TIL practices (DOE, 2024). To define public school leaders, this study included teachers, principals, and administrators who make decisions that affect the use of technology inside the classroom for learning practices.

Technological advancements have caused local education agencies (LEAs) to implement requirements making virtual learning a viable tool, therefore increasing costs for these LEAs associated with technology integration usage (DOE, 2024). Public school districts in Missouri run 80% on state and local taxes, which creates limited budgets for the operational needs of a 21<sup>st</sup>-century learning environment (DESE, 2024). Students

report that there is inadequacy with technology tools and materials in public schools, and they revert to traditional instructional books such as paper and two-dimensional visuals (Santos & Castro, 2021). The increasing technology resources needed to fund technology integration have become an obligatory cost for school managers (Bass, 2021).

Grant funding programs in the United States have worked to increase technology education by offering funds to spend on tech devices, leading to more access by students (Bass, 2021). However, more spending may not translate to increased use if programs become mismanaged. Bass (2021) found that a CA voucher program granting schools funds for technology education had significantly improved student achievement across Grades K–8, if the school was eligible and used the voucher. Bass found spending just 50 more dollars on classroom environments or instruction computer spending per student could increase math and English proficiency scores by 3.4 percentage points.

The U.S. educational system is challenged on when, where, why, and how to properly support technology learning with adequate financial resources (DOE, 2024). If there is not a plan on how to spend and allocate funds, any TIL program could fail. Fletcher et al. (2019) described TIL as occurring when teachers and students use technology devices, such as computers, tablets, and software, to introduce and reinforce student learning. Pence (2020) identified a systemic problem in school technology learning because devices such as computers and tablets are more individualized learning tools, and education should adapt to group activities and learning experiences. Pence (2019) concluded that educators must find the use for virtual reality (VR) and AI in school classrooms.

Introducing these technologies into student environments will take implementation from school leadership. The cost associated with the technology must be covered in the school's budgeting processes. School leaders should create a culture of technology integration amongst teachers if their goal is technology-based learning activities (Dexter & Barton, 2021; Kalimullina et al., 2021). Preservice teachers can be predictable in their technology use because lesson planning will relate to their own self-efficacy involving technology capabilities (Ottenbreit-Leftwich et al., 2018). Funding both training and technology for teachers will be a focal point to implementing more technology learning classroom exercises.

Creating proper long-term planning for financial resources and upcoming expenditures is a problem in public finance because the fiscal management processes are built to deter fraud and keep control centralized rather than the expansion of new innovative ideas (Tkachenk, 2020). Furthermore, Tkachenk (2020) explained that public finance systems are challenged to change because more approvals are needed from managers within the organization, all of whom have their own agendas about public service. Therefore, modern technologies in public schools could be delayed. Two innovative technologies becoming more commonplace with learning interactions are AI and VR (Pence, 2020).

With technology progressing, simulations have become increasingly realistic, which creates value for students to participate in real-life learning exercises (Pence, 2019). With a lack of leadership knowledge using such devices, or little funding allocated to purchase such tools, students could miss out on great learning opportunities.

Teachers in the 21<sup>st</sup> century are prepared to use technology for innovative ways to incorporate educational programs because technology has become commonplace in education, and teachers are expected to have adequate technology skills (Ottenbreit-Leftwich et al., 2018). Ottenbreit-Leftwich et al. (2018) found that preservice teachers have concerns over the use of TIL, and schools lack proper resources to apply technology skills, and therefore teachers are finding new innovative ways to use technology for systematic learning that relates to real-world experiences.

Advanced technologies such as VR can use computer technology to make students experience learning activities in simulated environments (Pence, 2020). AI tutoring systems can build customized learning analytics, allowing students to experience education based on their abilities, interests, and goals (Pence, 2019). VR and AI learning environments in the 21<sup>st</sup> century must be funded by American school districts, as research shows how these tools can increase student achievements (Pence, 2019, 2020). Training quality employees for the future will take LEAs investing in the best technology that improves not only teaching experiences, but also student experiences. New technology devices and training teachers will cost LEAs money, and quality financial management practices towards implementing TIL look important for educational advancements.

Increasing student learning experiences positively should have similar effects on teaching experiences. Effective teaching and management of these technology devices encourages the development of student creativity, analysis ability, and critical thinking skills (Razak et al., 2018). Technology device learning involves communicating across ICTs, such as laptops, to collaborate with peers and teachers (Razak et al., 2018).



Increasing students' ability to interact electronically will take dedicated budgeted dollars supporting these types of technology spending ideas. Money will need to be allocated to teachers, for technological, pedagogical, and content knowledge (TPACK) training purposes, preparing them to use TIL in classroom environments (Santos & Castro, 2021).

LEAs around the country need help managing the costs, training, maintenance, logistical tracking, and security of these devices (DOE, 2024). School systems around the country are looking at innovative ways to increase technology learning, while still budgeting state and local tax revenues economically (DOE, 2024). One example of this is school librarians serving as technologists, who work as learning curators with technology devices and services for students (DOE, 2024). The costs associated include devices, equipment, software, environments, coordination, asset tracking, and the training needed to prepare teachers to use technology towards instructional learning (DOE, 2024). The general social problem is a lack of TIL being done in public schools during the 21<sup>st</sup> century. The specific problem is the lack of understanding about how leadership is planning and financially managing the allocation of budgeted dollars to support TIL. My study explored how school leadership allocates financial resources towards TIL based on financial management and annual budgets developed for TIL.

Based on my experiences as a budget analyst in a public school district, once a school's revenue has been established by its state and local government, it is school leadership's duty to develop a fiscal year budget showing the expected allocation of funds at fiscal year-end. A (e.g., if the district received 100 million dollars to fund a fiscal

school year, looking at how school leadership allocates funding to support TIL can be a measurement of success, or attention towards the initiative).

Viewing problems from this perspective could create positive social change within school systems across America, because it shows the attention leadership is putting towards technology integration programs. Financing the implementation of technology learning has caused school districts to experience budget crunches, based on rising costs associated with the process (Gonzales, 2020). Software fees alone can cost districts hundreds of thousands of dollars per year and require monitoring throughout the year for internal control efficiency (Gonzales, 2020).

Many components need to align when it comes to implementing technology learning in public schools. School leadership must be adaptable and open to innovative teaching practices. Santos and Castro (2021) found that not all teachers are adept with technology lesson planning, and not all can effectively deliver lessons with technology devices. The U.S. DOE (2024) technology infrastructure initiative plan identifies challenges such as budgeting, teacher efficacy, and planning when it comes to technology learning and teaching. These obstacles may cause fear of change inside public-school districts, which could stunt students' developmental skills, causing them to be unqualified for employment in the 21<sup>st</sup> century.

### **Purpose of the Study**

The purpose of this phenomenological study was to explore lived experiences of public-school leaders involved with financial management and planning of resources to support TIL. My study focused on leadership planning towards budgeting dollars for

allocation of resources towards TIL. Participants of the study were school leaders with over 5 years of experience working with the planning and funding processes of TIL within a public school district. This topic is important because TIL is demanded by the public, because students need technological skills to get employment. Examining how school leaders allocate school resources to support TIL can influence the successful implementation of TIL.

I have firsthand experience on how the budgetary processes work within a Missouri public school system. School leadership planning and allocation of dollars have a correlation effect on technology spending in public-school environments. My experiences as a local and state government auditor allowed me to gather a holistic vantage point regarding school finance. This topic is important because the national public educational system in America is supporting the phenomena of technology integration.

Learning activities with technology devices are vital in the 21<sup>st</sup> century (DOE, 2024). By gathering, reviewing, and analyzing how experienced school leaders managed TIL, new useful epistemology could be discovered. A study of this type may create ontology that will change the way school leaders manage technology integration planning and budgeting practices. Students can gain new educational experiences in new forms with technology devices. Kim and Jang (2020) found that technology integration sustainability in classrooms is dependent on an educator's effective ability to use technology devices.

Focusing technology financial management towards teachers' professional development needs and personal device equipment may transform the use of technology as an educational aid. Novel studies focusing on teachers' needs for implementing technology could spark social change around the educational experience students have in public school classrooms. Teachers innovative with technology may create auspicious learning environments, leading to new forms of education and creating positive social change.

Purtell and Fossett (2018) asserted that a change in the fiscal management of government entities is needed. Traditional government entities focus on public-sector budgeting; however, to keep up with new workplace demands, Purtell and Fossett contended that state and local government leadership should go beyond just budgeting. By studying a broader range of economic management, analytics, and service tools around organization leadership, a financial model designed for future use could be established in public-service.

Zeynep et al. (2019) found that an essential element for sustaining teachers' involvement with technology integration relies on them having positive attitudes and a belief that TIL works. For this study, interviewing school leaders with experience planning and financially funding technology learning rendered added information. The data analysis process could lead to innovative ideas, creating positive social change inside public-school systems, and affect how teaching in the 21<sup>st</sup> century progresses.

School leadership is adapting new learning approaches, specifically technology device learning via interactive face-to-face communication (Li & Lalani, 2020). Proper

practices by school managers to fund these new types of learning technologies will necessitate financial management of technology devices and software. Generating firsthand perspectives from experienced participants can illuminate ways school leaders have overspent, underspent, or misspent when it comes to implementing technology learning.

This phenomenological study may benefit future public school leaders using technology for learning activities. By exploring different experiences from study participants, current and future public-school leaders could influence positive social change around teaching efficacies with technology devices. These changes could revivify the educational experiences of students in classroom education. The focus of this study was on one key research question exploring this phenomenon, which was developed to understand better ways to manage the financial planning process of TIL.

### **Research Question**

What are the lived experiences of Missouri public school leaders when it comes to the financial management and planning to manage budget dollars towards implementing technology integration learning in their classrooms?

### **Conceptual Framework**

The theories and concepts that grounded this study focus on leadership planning and allocation of budgeted dollars to support TIL inside public school systems. TIL is dependent on school leadership planning and funding programs that enhance students' learning experiences. Public school leaders, including principals, administrators, and teachers, have an influence allocating budgeted dollars to specific spending categories. In

a case regarding teacher pay, researchers (Brunner et al., 2020) found that public school districts with strong teacher unions increased expenditures on teacher compensation, which increased student achievement. This example provides proof of a relationship between spending categories and student success.

Public schools budget spending based on revenues expected and use categories, subcategories, and functional codes to log expenditures (Brunner et al., 2020; DESE, 2024). To plan for TIL during a school year, school leadership must take initiative-taking measures and budget accordingly to support technology use for learning activities.

To conceptualize the relationship between leadership, financial management, and TPACK, I developed a brain-shaped cloud as my “conceptual framework diagram.” The diagram encompasses the TPACK framework around technology integration in schools developed by researchers Mishra and Koehler (2006).

Mishra and Koehler (2006) developed a framework illustrating technology integration development by creating the TPACK concept. This framework aids in helping teachers experience professional development (PD) towards the integration of technology teaching with devices for instructional learning, which enhances students’ learning experiences (Mishra & Koehler, 2006). The TPACK framework shows how learning environments, content, pedagogy, and technology play a role in the implementation of technology for educational purposes.

In the United States, 18 billion dollars are spent annually on teachers’ PD training, and often teachers do not choose their programs, but rather the school districts who employ them do (Horn & Goldstein, 2018). Isolating how to conduct technology PD

versus other PD programs is vague, except public school districts in America promote TIL (DOE, 2024).

The framework measures technology integration based on TPACK scores (Mishra & Koehler, 2006). Researchers Mishra and Koehler (2006) showed the importance of PD training and equipment needed for successful technology learning. School finance leaders must strategize and organize plans that facilitate proper training around technology integration, and proper financial management is a key element to driving environmental changes (Li & Lalani, 2020).

The process of providing teachers and students devices, software, and training for technology instructional learning will take dedicated budgeted dollars. These budgets are approved by school leadership and allocated accordingly. To visualize the scope of the role that school managers and financial management play in technology integration (TPACK) development, I provide a conceptualized brain in my conceptual framework diagram.

The figure circles Mishra and Koehler (2006) developed work on the TPACK framework. The conceptual framework diagram shows the TPACK diagram, which is encompassed by financial management, which is then encapsulated by school leadership. TPACK refers to the content knowledge and intuitive abilities teachers must possess to integrate learning content areas with technology use (Santos & Castro, 2021).

The TPACK theory was developed to measure and explain the knowledge teachers need using technology devices for effectively instructing students (Santos &

Castro, 2021). Financial management of TIL is important because literature on this topic contains descriptions of the many aspects and expenses related to TIL.

My experiences as a lead budget analyst working inside a public school system have shown me that school leaders are responsible for allocating and approving yearly school budgets, with the help of teachers and other school staff. Money allocated for spending is first determined by state and local tax revenues, then revenues are placed into budgets, such as general spending, salaries and benefits, capital assets, or debt service funds.

Spending can be further allocated towards supplies, buildings, maintenance, security, technology, professional development, or any other category that school management decides is needed for quality educational experiences. My experience allows me to visualize how school leadership affects the allocation of spending dollars towards technology, and I present a conceptual framework to help others understand the pivotal role school leaders play regarding financial management processes.

By identifying the TPACK framework, and encompassing it with leadership and financial management, an audience can visualize how important these two functions are in the successfulness of TIL. Based on my experiences, school managers typically decide yearly budgets 3 to 6 months before the start of the next fiscal year. This demonstrates a proactive leadership approach in planning expenditures for the upcoming school year.

To support a TIL initiative, school leadership needs to allocate dollars towards technology integration in upcoming years. From my experience as an assurance auditor to Missouri public schools, every year, Missouri public-school districts produce an Annual



Comprehensive Financial Report (ACFR). This audited report is published on their website, available for public viewing of governmental activities (DESE, 2024). Many functional expenses are segregated into categories of expenditures, such as instruction, supplies, health services, professional development, operations, food services, debt services, and so on. Schools may show technology expenses on their financial statements, while others include technology in the instructional supplies category.

From my experience as a school auditor, schools can track technology spending because a functional or object code exists and can be assigned based on the structuring of accounts defined in the Missouri financial accounting manual (DESE, 2024). Monitoring and tracking technology integration spending without the support of school leaders would be challenging. Planning and allocating financial resources for technology devices and training would have to come from school management.

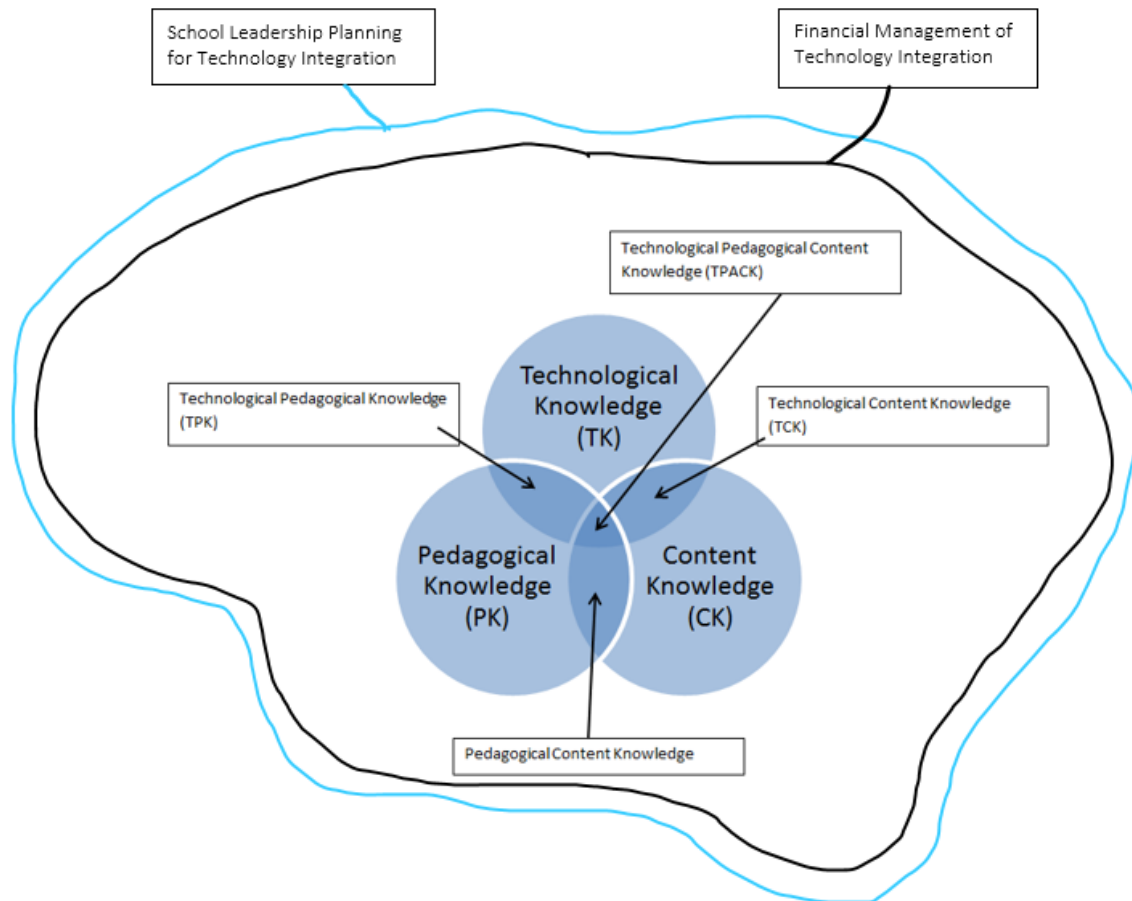
A culture promoting technology integration monitoring may create a need for budgetary tracking of technology expenditures. This activity could lead to better financial management of the limited resources public schools receive. Purtell and Fossett (2018) described government accounting and budgeting systems as historically designed systems. Outdated systems could hinder school leaders' plans for implementing TIL. Upgrading financial management systems with technological tracking capabilities may benefit school leaders' management processes.

Governmental accounting systems were created for internal controls and prevention of theft through fund accounting and line budgeting. With management controls set for allocations of funds to certain categories, there is a measurable metric

available. The fund accounting structure most government entities are required to comply with is structured into large and small “pots” of money with codes describing their designed use for expenditures (Purtell & Fossett, 2018, p. 96).

The support of school leaders and the culture surrounding TIL is shown to increase student participation in collaborative learning activities when using technology (Dexter & Barton, 2021). The visualization presented in Figure 1 shows how school leadership encompasses financial management, and then financial management encompasses (TPACK) TIL initiatives. TPACK is dependent on school leadership and financial resources promoting the use of technology interactions inside public school systems.

With technology becoming more important to job functions in labor markets, it is common knowledge that public schools need to train teachers to use technology learning in classrooms. A mastery of instructional competencies amongst teachers using technology is necessary for properly instructing students and developing their skills implementing technology interaction activities (Santos & Castro, 2021).

**Figure 1***Leadership and Financial Management of Technology Integration Learning*

*Note.* This figure shows the relationship school leaders have with the financial management processes that influence technology integration learning in public school systems, with the aid of Mishra's and Koehler's (2006) TPACK framework.

### **Nature of the Study**

A phenomenological design was chosen to address the research question in this study. By interviewing public school leaders who are considered experts in their field, I sought information that could explain the allocation of budgeted dollars towards TIL. Interviews were conducted in person and audio recorded. The leaders interviewed included teachers, principals, and administrators with over 5 years of experience planning and funding TIL within a public school district. Through a study of this nature, new perspectives could benefit future school leaders and create more technologically advanced learning experiences for students.

Social change may occur regarding the way teachers educate students, leading to advancements in student achievement. By gaining perspectives from lived experiences, deep, rich, data were extracted from participants (Ravitch & Carl, 2020). Analyzing and expounding on the data collected may influence future school leaders' processes around TIL. This research may help future public-school leaders understand how to overcome financial obstacles when facing challenges implementing TIL. School leaders could identify ways of saving on technology costs by spending wisely in areas found to be critical for successful TIL. This may lead to positive social change regarding TIL and improve students' learning experiences.

LEAs around the United States facilitate funding for technology learning (DOE, 2024). Education in the 21<sup>st</sup> century is more technology driven than any century prior, and new perspectives around the financial management of technology integration need to be addressed. New, innovative ways of education such as VR and AI are being explored

as avenues for enhancing student learning experiences (Pence, 2020). Examining how school leaders are working to finance these types of innovative learning technologies is important for American employers and future employees within these school districts. By focusing on the planning and financial management aspects regarding TIL in classrooms, school leaders may be inclined to change the way technology implementation occurs.

Pence (2020) asserted that most instructional technologies available are focused on individual learning experiences. Classroom education could benefit from an aggregate effect by technologies connecting, creating cooperative learning environments that inspire new forms of pedagogy (Pence, 2020). This study can help future school leaders because it involved addressing concerns with TIL implementation. This phenomenological study consisted of obtaining lived experiences from school leaders with 5 years or more implementing TIL. Their knowledge can potentially create positive social change for students and educators in public school districts.

### **Rationale**

The phenomenon of TIL has many facets influencing the outcome of student learning experiences, finances, leadership, location, teachers, and school culture. School districts willing to curate an environment using technology devices must have financial resources to support the activities, from my experience as a budget analyst. Raman et al. (2019) contended that school leaders set the tone inside the organization, which creates a culture promoting technology use for educational purposes. Principals and teachers must transform educational organizations and environments to influence students' use of technology in everyday life. Proper financial planning allows education institutions to

assess their needs, set priorities, and optimize the utilization of resources (Dwangu & Mahlangu, 2021).

In today's educational classrooms, the use of technology between students and teachers is less than normal when compared to their use outside classrooms. Students, teachers, principals, and administrators have technology devices at the tip of their fingertips; however, engaging in educational learning activities inside schools is behind when compared to technology use outside of schools (Raman et al., 2019). Technology devices can empower students' brains by working as an aid, and therefore explorations of leadership planning and financial management influencing TIL make sense.

To help answer the research question presented, data were collected by interviewing 11 school leaders, including teachers, administrators, and principals, allowing saturation to exist in the phenomenology study (Groenewald, 2004; Morse, 1994; Neubauer, 2019). They provided firsthand lived experiences regarding how they financially managed and planned the processes to integrate technology learning in school classrooms. To ensure that the data are relevant, the criteria were structured to include only participants with 5 years or more of experience managing TIL in public-school environments. Based on this criterion, the participants are considered experts in their field. By interviewing participant field experts in their profession, rich, firsthand knowledge can be gathered regarding the financial management and planning of technology integration (Groenewald, 2004; Ravitch & Carl, 2020).

Bracketing was the methodology approach chosen for data analysis, which reflected common themes and ideas from the data collected. Ravitch and Carl (2020)

noted that the unique experiences from participants create a credible research study, helping the trustworthiness of the data collected.

### **School Leadership**

Leadership is viewed as highly valued in businesses, and organizations are actively seeking technologically advanced candidates who can drive positive change. Cultivating innovative school cultures may lead to positive social change within student learning environments. For this study on technology integration management within school systems, the focus was on transformational leaders. Raziq et al. (2018) defined transformational leadership as the implementation of changes within an organization model or structure that leads to success. Given the challenges faced in effectively implementing TIL in the 21<sup>st</sup> century, school districts may seek transformational leadership styles to enhance their technology integration management projects (Jung et al., 2016).

Good leaders motivate their followers, inspiring them to reach their full potential, while fostering an environment of trust, promoting creativity, and developing processes to accomplish group goals (Raziq et al., 2018). Educational learning experiences have evolved to incorporate modern technologies and software that encourage collaboration among students and educators (DOE, 2024). However, districts have struggled to educate students using these devices effectively and efficiently (DOE, 2024). Applying the four-dimensional styles of transformational leadership to TIL has the potential to revolutionize education experiences. Raziq et al. (2018) presented the four transformational leadership styles as four Is:

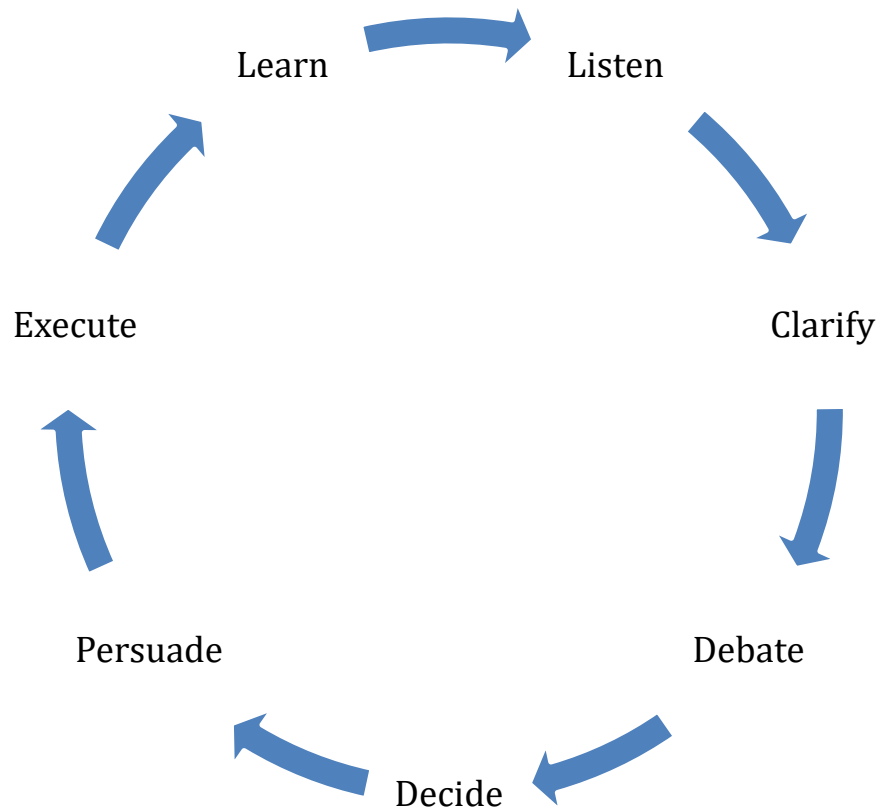
1. Idealized influence: Leaders serve as role models, exhibiting high ethical standards and inspiring trust and respect among followers.
2. Inspirational motivation: Leaders inspire and motivate followers by setting challenging goals and articulating a compelling vision.
3. Intellectual stimulation: Leaders encourage creativity and innovation by promoting intellectual curiosity and critical thinking.
4. Individualized consideration: Leaders provide individuals support and coaching to foster the growth and development of each follower.

By incorporating these transformational leadership styles into TIL initiatives, educational outcomes can be enhanced. To enhance technology device use amongst students and teachers, a transformational shift is needed in public schools. Another aspect of leadership is decision-making ability, and Scott (2017) asserted that good decisions are made from collaborative efforts by leaders, based on clarified ideas created as a group. Scott designed a collaborative working process show in Figure 2, that is found to be effective for successful leadership decision making, known as the “Get Stuff Done” (GSD) wheel.



**Figure 2**

*The “Get Stuff Done” Wheel*



*Note.* This figure shows how management can work through decision-making problems by following this wheel pattern created by Scott (2017) describing each process of a successful collaborative decision.

The wheel is designed to give managers a creative path towards thorough decision making. By outlining steps to follow, it helps eliminate wasteful time and helps managers progress to a final decision (Scott, 2017). The next portion contains a discussion of financial management and the aspects related to school financial management influencing TIL in classrooms.

### **Financial Management**

Top executives of organizations are designated decision makers and are held accountable when it comes to the financial structuring of company assets and liabilities (Brigham & Houston, 2021). Finance can be defined as the circulation of money inside a system. A finance system uses bank intermediates that grant credit, make investments, and store physical assets.

There are three parts of finance taught in universities: (a) financial management, (b) capital markets, and (c) investments (Brigham & Houston, 2021). Financial management is defined as organizational leadership using basic financial analysis knowledge for spending organizational resources sensibly, while keeping adequate resources available to accomplish organization goals (Purtell & Fossett, 2018). Financial management is a system created to manage organizational resources effectively and efficiently (Kader, 2019). Also known as corporate finance, financial management focuses on decision making by management related to capital structuring needs, and to maximize shareholder wealth (Brigham & Houston, 2021).

The number one reason organizations fail as a business enterprise is “careless financial management” by leaders (Kader, 2019, p. 6). Fundamental principles in

financial management are the same when it comes to for-profit or not-for-profit organizations, which is to keep participating in the company objectives with continued circulation of money (Brigham & Houston, 2021). One critical difference between the two is that not-for-profit leadership serves communities and enhances social environments, while for-profit organizational leaders work to maximize shareholder profits (Brigham & Houston, 2021).

Public school leaders are held accountable for their financial management decisions by the DOE (Dwangu & Mahlangu, 2021). Public performance indicators, also known as PPIs, have been used by public organizations to hold management accountable (Eriksen, 2020). These indicators measure organizations' leadership accountability towards reaching goals (Eriksen, 2020). Lacking accountability measurements regarding school leaders' financial management decisions could impede the implementation of TIL. If the educational system in America has a mission to improve student technology abilities, a key part of the success will be school leaders' decisions allocating dollars to support TIL.

Tkachenko (2020) created a definition for public financial management (PFM) using four previous literature works, describing a "system of principles and methods" developed overtime by not-for-profit organizations to manage decisions effectively and improve the community population by using financial resources efficiently when monitoring and reviewing risks (p. 78). By conducting a research study focused on the allocation of finance dollars supporting TIL, new information around the phenomena may spark social change. Exploring the experiences of leaders' financial management

processes in public schools may alter how students experience education in America. Enhancing technology learning with better management decisions towards allocating dollars to support TIL could increase student achievement. Public financial management involves many actors in comparison to public companies when it comes to decision making, and change can be challenging to initiate (Tkachenko, 2020).

### **Definitions**

*Accountability*: Managing expectations becomes common, essentially creating a reputation to deliver results as promised (Eriksen, 2020).

*Field expert (FE)*: A teacher proficient in technology, pedagogy, and content knowledge to support the implementation of TIL (Mishra & Koehler, 2006). For criterion study purposes, it is determined that this process is achievable after 5 years of experience managing TIL. Based on Gladwell's (2009) book *Outliers*, 10,000 hours is reasonable to become an expert in one's field. Ten thousand hours equals 5 years (a) of employment by 40 hours (b) a week (c), times 52 weeks (d) in a year (e), minus 2 weeks' vacation.  $(a*d) - (b*c)$  equals  $(40*52) - (40*2) = 2080 - 80 = 2,000$  hrs. Then  $(b*e) = 2,000*5 = 10,000$  hrs. (Gladwell, 2009).

*Financial Management (FM)*: Organizational leadership making decisions related to types of assets needed for maximizing the firm's value based on an optimal capital structure of credit and debt (Brigham & Houston, 2021).

*Information and communication technologies (ICTs)*: ICTs are devices used to communicate via the internet. Knowledge of ICTs is a person knowing how to operate computer devices and software and access the internet for interactions (Mailizar & Fan,

2019). ICTs for teaching involve implementing the TPACK learning components to enhance students' learning experiences with technology devices and software (Mishra & Koehler, 2006).

*Innovative learning environment (ILE)*: Classroom layouts technology-infused with the space and flexibility for multimodal responsive learning activities for enhanced learning experiences in the 21<sup>st</sup>-century classroom (Byers et al., 2018).

*Professional development (PD)*: A teacher gaining specialized training in the form of content knowledge, pedagogy knowledge, and technology knowledge to increase teaching abilities for educating students in learning environments (Mishra & Koehler, 2006).

*Public financial management (PFM)*: A system built on principles and methods adopted for the purpose of not-for-profit organizational managers to make decisions when forming, distributing, and monitoring financial resources for the benefit of improving community members' way of life (Tkachenko, 2020).

*Smart classroom*: A learning concept created to accommodate synchronous and asynchronous learning using AI-based technologies, which delivers traditional and distance learning using smart devices that support various learning styles between teachers and students (Yuliantoputri et al., 2019).

*Smart learning systems (SLS)*: A system that facilitates distance learning activities by providing easy access to documents, learning analysis, and learning environments, tailored to enable interactive teaching (Yuliantoputri et al., 2019).

*Smart teaching environment (STE):* A classroom environment that helps teachers use smart devices for classroom learning activities and track students' progress that develops customizable learning (Yuliantoputri et al., 2019).

*Technology integration (TI):* The process of educating students with ICTs, which interact across the internet, giving students collaborative learning experiences while gaining technological skills needed in the digital world of today (Marie, 2021).

### **Assumptions**

TIL is beneficial for students' educational experiences. Based on the literature reviewed and my experiences working within public school systems, there is a prevailing sentiment in the 21<sup>st</sup> century that supports the notion that technology enhances students' awareness and consciousness. By assuming that technology aids students, an argument is created for the usefulness of TIL both inside and outside classrooms. This assumption also acknowledges that technology is valuable in addition to traditional workbook learning, making both components important for a student's educational experience.

For the study, I aimed to understand how financial management by school leaders affects TIL in public school systems. Exploring this topic shows that technology devices used for learning can improve student achievement. Markson and Forman (2021) conducted a study reviewing New York State Education Department data to examine the effects of technology on student achievement. The researchers found a statistically significant and positive correlation ( $p < .05$ ) between the percentage of technology devices used by students and student achievement variables, such as advanced designations scoring in English language arts, geometry, and mathematics (Markson &

Forman, 2021). Therefore, based on my assumption, public school leaders should be inclined to embrace and utilize TIL in classrooms, as technology devices can serve as valuable learning tools for students.

Marie (2021) conducted a study involving 53 teachers, of which 29 were in the experimental group using a blended learning approach for teaching. The researchers found a significant difference at the 0.05 level in student average mean scores, and the findings demonstrated statistically significant differences at the 0.05 level in educators' pedagogical performance level before and after the implementation of blending learning approaches (Marie, 2021). This study illustrates that technology-enhanced learning practices can foster better learning environments for students and improve teaching outcomes for educators. TIL is generating auspicious experiences in classrooms and leading to social change in how students engage with education.

### **Scope and Delimitations**

To answer the research question, I gathered firsthand lived experiences and collected data directly from school personnel involved with the planning and allocation of resources to implement TIL. After delving deeper into this phenomenon, I determined that gathering deep, rich, descriptive data from participants' lived experiences is best done using a qualitative phenomenology study (Ravitch & Carl, 2020). A qualitative phenomenology research study is best conducted by interviewing participants and asking questions related to their lived experiences about the phenomena being studied.

For the planned research design, I used sources of data from interviews with public school leaders in Missouri who were experts in their field. To help gain rich

knowledge, I defined an expert as having 5 years of experience with TIL implementation. A criterion sampling methodology involves selecting participants possessing knowledge and experience around the phenomenon of interest (Palinkas et al., 2015). The goal was to gather 10–12 participants, including teachers, principals, and administrators, for data saturation (Groenewald, 2004; Morse, 1994; Neubauer, 2019). Interviews were conducted in person or by video conferencing. Interview questions incorporated the planning, budgeting, and allocation of financial dollars towards TIL to gain a clear picture surrounding financial management processes. By using a criterion sample identifying experts in the field with 5 or more years of experience, a qualitative researcher can identify a “selection of information-rich cases related to the phenomenon of interest” (Palinkas et al., 2015, p. 533). Morse (1994) suggested including more than six participants for a phenomenological study approach.

Each participant has their own perspectives and experiences regarding financial management and budgeting processes for the implementation of TIL in classrooms. School leaders are the tone setters regarding culture, environment, training, and financial management supporting TIL (Ugur & Koc, 2019).

### **Limitations**

A barrier existed because not enough technologically advanced school leaders were willing to participate in the study at the first two districts. Another school district was recruited for participation to meet the criterion sampling requirement. Each participant interviewed had 5 years of experience managing TIL. Using a purposeful



sampling approach based on a certain criterion eliminated many school leaders who could have participated.

The study parameters were specialized to a certain criterion because it helped in gathering rich, firsthand experiences from key people within the public school system (Palinkas et al., 2015; Ravitch & Carl, 2020). Criterion sampling allows researchers to choose participants with specific roles in an organization, and to some extent, these participants are assumed to represent their roles accurately (Palinkas et al., 2015). Due to criterion sampling, limited exposure existed in the first district, necessitating the recruitment of additional public-school districts for participation.

The study was completed by purposeful criterion sampling involving three or fewer public-school districts located in Missouri. Gathering participants with 5 or more years of experience developed a valuable data source (Palinkas et al., 2015). Learning about experiences from field experts provided an answer to the study's research question.

### **Significance of the Study**

This study is useful for public school district leaders wanting to plan and implement financial management practices for successful TIL. Current and future school leaders might find this information useful when making decisions and learning from other educators' lived experiences regarding the financial management process surrounding TIL. This phenomenological study involved gathering rich, firsthand experiences from participants, delivering unique and reliable data points from their experiences (Carl & Ravitch, 2020). Having school leaders view technology integration spending from a new perspective is significant for the future of public education. Horn and Goldstein (2018)

examined the impact of giving teachers more control over budget spending. Instead of budget decisions being made at the central office level, these decisions might be better managed by teachers at the school level.

The target benefactors in reviewing this research consisted of school leaders with dedicated responsibilities for implementing and planning financial management around TIL. Neubauer et al. (2019) noted that a phenomenology study allows audiences to learn from past experiences of others. School leaders are imperative to America as a functioning part of a larger system, and public-school systems face challenges regarding TIL. Public financial management's main objective is to maintain budgetary discipline (Tkachenko, 2020). Therefore, a budget found inaccurate for technology learning during a fiscal year would be a challenge to overcome midway through a fiscal year.

The gap being focused on in this study relates to financial management and leadership planning when it comes to allocating funds to support TIL. According to Ired (2020), 90% of students in America attend a public-school district, and from that comes America's future workforce; therefore, their skill set should prepare them for employment in the 21<sup>st</sup> century. The U.S. DOE (2024) explained the importance of technology device upgrades. If school leaders do not create proper planning when developing annual budgets for these school upgrades and improvements, a lack of funding for replacement costs could occur. Additionally, proper budgeting for technology device upgrades can allow for amortization of the costs over several fiscal years.

A century that includes technology-driven work and training needs employees capable of operating technology devices. Investigating ways that experienced school

leaders think and process their experiences and emotions around the financial management of technology integration may illuminate new ideas. New ideas about the management planning processes within public schools may lead to positive social change, advancing students' learning experiences. By depicting aspects of technology learning financial management, new ideas may aid school leaders wanting to transform learning environments.

If TIL can enhance students' abilities, collaborative skills, and knowledge when it comes to problem solving and help educators teach skills students need, then attention towards understanding how the financial management processes works is relevant. If interacting, communicating, and working involves technology devices, then America's public school educational system should adapt. Focus on TIL could influence positive social change on how school leaders allocate funds towards improving technology financial management in American public-school districts.

### **Significance to Practice**

The focus of this study was an investigation of school leaders' lived experiences with the planning and financial management of TIL. The significance of this topic aligns with the U.S. DOE's (2024) infrastructure plan outlining 50 billion dollars in public school upgrades. The upgrades include better school technology environments and increasing technology device use with a goal for each student and teacher to have their own assigned device.

In learning from the lived experiences of school leaders with firsthand knowledge about the planning and allocation of resources for technology integration, deep, rich data

can be extracted to compound units of meaning (Creswell & Roth, 2018). Understanding new perspectives from school leaders with financial management experiences in TIL allows for different leadership approaches to be examined. Specifically, this study was conducted to determine how public-school leaders allocate financial resources towards TIL expenditures, such as professional development, devices, software applications, and support services.

### **Significance to Theory**

This phenomenology approach exploring school leaders' lived financial management and planning experiences about TIL may add significance to current TIL theories. This new perspective on experiences may influence school leaders' implementation processes supporting TIL. By researching the planning and financial management aspects regarding technology spending in public schools, findings may benefit preservice teachers and school leaders wanting to implement TIL activities. Common themes found in collecting data units of meaning are thick data points, insightful with meaning and purpose (Dorfler & Stierand, 2021). Deep, meaningful information could lead to social change regarding educational learning experiences for students and teachers. With better planning and resource management, public school districts may advance TIL environments. Willis et al. (2019) noted that technology integration helps student engagement, makes teaching easier, and helps students develop creative awareness.

### **Significance to Social Change**

Exploring school leaders' financial management and planning processes affecting TIL may lead to social change. New information may initiate school leaders' innovation skills, creating new educational experiences for teachers and students. Evolving students' educational experiences, teachers' self-efficacy, and learning environments may lead to positive social change (Barton & Dexter, 2020). Limited financial resources in public school organizations make it difficult to manage technology expenditures (Ekaette et al., 2019; Fletcher et al., 2019). School leaders trying innovative ways to finance and enhance TIL may benefit teachers and students.

The study results may lead to innovative financial management methods for implementing technology learning, creating new learning experiences for students. Studying how school leaders allocate funds designated to TIL spending may create a change in fundamental budgeting principles for public financial management. These ideas could lead to a social change rippling throughout the educational arena. Technology devices being personal apparatus used for educational tools, aiding in the growth and development of students, is the future. Technology learning software can give real-time statistics, allowing students to collaborate in real time and participate in learning activities (Pence, 2020).

By funding technology learning by fundamentally changing school leaders' acumen towards TIL planning and allocating funds, resources may be extended in public education. Public entities conduct financial management with the primary goal focused on budgetary expectations. These internal controls keep the organization solvent and

allow management to examine spending habits of the organization (Tkachenko, 2020). It is apparent that technology requires updating. Developing a long-term strategy on how to manage technology expenditures in public schools could enhance school learning activities, creating positive social change. By altering students' education experiences and interactions with educators, new forms of learning may be effectuated in public school environments. By gaining in-depth firsthand lived experiences from public school educators, questions can be answered focused on the planning and allocation of resources (Ravitch & Carl, 2020). Designing new ways to allocate funds to support TIL may lead to positive social change regarding the experiences of students and teachers in 21<sup>st</sup>-century classrooms. The perspectives of experts aware of financial management and planning practices involving TIL contain new information that may change school system environments across the country.

### **Summary and Transition**

In reviewing this study's topic, I learned that many factors influence TIL. Research surrounding this topic exemplifies how leadership planning and financial management are integral parts of TIL. Furthermore, the processes school leaders implement when it comes to TIL need to be explored. In Chapter 1, I presented some problems facing TIL in the 21<sup>st</sup> century. Specifically, I addressed the financial management of school leaders supporting TIL. Teachers need stability with technology for growth and confidence to use it for instruction. Technology devices have long-term expenditures including upgrades, learning environments, PD, maintenance, and ancillary costs including infrastructure and software (Fletcher et al., 2019).

My research question was presented, along with the conceptual framework, including Mishra and Koehler's (2006) TPACK model around TIL. The framework determined the use of a phenomenological research design to get the best results. Chapter 1 illuminated the management challenges school leaders endure when it comes to leadership planning and financial management of TIL. Described were the type of research study conducted and how the data collection process was developed using interviews with school leaders considered experts in their field. The interviews explored the lived experiences of participants with 5 years of experience managing TIL. Further research examining technology integration financial management is needed for future educators in the 21<sup>st</sup> century. Chapter 2 contains a discussion of literature supporting this topic that demonstrates the importance of TIL for students' educational experiences in public schools.

## Chapter 2: Literature Review

The purpose for conducting this phenomenological study was to explore lived experiences of school leaders with 5 years managing TIL. The problem around this phenomenon was a lack of TIL occurring when compared to technology spending and availability (Byers et al., 2018). Students use connectivity technology for gaming, media, videos, and more entertainment applications, as opposed to educational learning tools (Chih-Hung & Chin-Chung, 2021). Leadership planning and financial management of TIL in public school classrooms needs attention to ensure that spending is appropriate, and to ensure a strong workforce capable of working with the latest technologies. By gaining firsthand lived experiences from professionals in school management, the data consisted of ways they allocate funds to support TIL. ICTs are serviceable tools educators use for teaching students (Willis et al., 2019). For ICTs to be useful, educators need thorough planning at the pedagogical level, with processes in place to create collaborative educational lessons (Santos & Castro, 2021).

School administrators play a crucial role in planning and supporting teachers' training activities for the successful implementation of TIL in classrooms (Zeynep, 2020). Given that education funding constitutes a significant portion of state and local government budgets, how these funds are allocated will greatly impact the quality of education experiences in the 21<sup>st</sup> century (Baker, 2018). In America, 10% of all federal funds are dedicated to education spending (Baker, 2018). The way these funds are allocated will add context and influence towards quality educational experiences. According to Jung et al. (2016), the lack of technological advancements in public schools



can be attributed to budget and planning issues. This study addressed these challenges and contributed to improving TIL in educational settings. School management sets the tone, which influences culture within the operational dynamics of a public-school system. Leaders must adapt their way of thinking regarding technology use in classrooms if successful TIL is an organizational goal (Ugur & Koc, 2019).

Another paradigm influencing TIL is the collection of standards adopted by the International Society of Technology Integration (ISTE; Nelson et al., 2019). Accreditation programs developed by the ISTE promote standards developed for teachers, students, technology coaches, and technology educators to use technology for learning (Nelson et al., 2019). Awareness and ability to implement successful technology integration involve leadership planning and proper financial management of resources. The largest part of school spending is salaries and benefits for staff (Brunner et al., 2020). This is important to note because teachers receive the most budgeted dollars from schools, and therefore TIL should start with them. Teachers' self-efficacy with technology is a driving motivator to expand TIL, and teachers should receive professional development training geared towards improving their TIL teaching abilities (Barton & Dexter, 2020; Nelson et al., 2019).

America is spending money to train and fund technology use in public schools (DOE, 2024). Jung et al. (2016) reported that between 1990 and 2000 the American government invested 40 billion dollars in K–12 public schools to increase technology use and train educators. Even more, 338 million dollars were offered to U.S. teachers between 1999 and 2006 for taking educational programs created to increase teachers'

technology confidence. In 2009, the American Recovery and Reinvestment Act (ARRA) contributed 650 million dollars for the enhancement of education through technology programs (Jung et al., 2016). However, various researchers determined that these efforts to promote technology use did not translate to technology integration success in the classroom and noted that schools are not progressing (Jung et al., 2016).

According to a 2009 National Center for Education Survey (NCES), between 29% and 40% of teachers report using technology during instructional time (Jung et al., 2016). Ge et al. (2021) found that new technologies continue to play a significant role in the 21<sup>st</sup>-century educational landscape because these technologies help students work collaboratively. When using technologies collaboratively, students develop problem-solving and critical-thinking skills, while building creativity (Ge et al., 2021; Marie, 2021). The U.S. DOE (2024) explained that public school leaders should be mindful of technology upgrades and purchases needed for normal day-to-day operations, and school infrastructure networks should be well maintained.

Zeynep (2020) supported educators trying new approaches, being adaptable, and including the use of real-world technology integration case studies to help teachers acquire the skills needed to utilize technology in the classroom. New concepts for enhanced learning environments led researchers Byers et al. (2018) to investigate the effects of ILE classrooms versus traditional classrooms. Byers et al. conducted a yearlong quasi-experimental approach to investigate the impact of these different types of learning environments, and the results showed a positive significant effect with ILE classrooms producing more collaborative learning modes and experiences for students.

Learning experiences have been altering during the 21<sup>st</sup> century, becoming more technologically advanced, and new technologies such as AI have further advanced computing machines (Yuliantoputri et al., 2019). Yuliantoputri et al. (2019) proposed that smart classroom environments be created to induce technology use. These classrooms would use smart devices that support distance learning activities under Smart Learning Systems (SLS), and classroom learning activities under Smart Teaching Environments (STE). Fulfilling these objectives integrates a learning activities framework that aligns with educational system goals, while increasing attendance and using AI to interact with students randomly for award validation (Yuliantoputri et al., 2019).

Next, the literature search strategy is provided. The search was used to explore gaps in the research surrounding planning and financial management of TIL. Then, the study's conceptual framework is demonstrated using a diagram of the research gap being explored. This gap focuses on TIL from the scope of leadership planning and financial management practices. The study was designed to explore how school administrators, principals, and teachers manage TIL planning and financial management practices when allocating resources to support TIL.

### **Literature Search Strategy**

It was important to use quality peer-reviewed articles, journals, and other credible sources when conducting research. I performed an exhaustive review of literature across various databases and platforms to gain a broad understand of the study's phenomena. The following databases and platforms were used: Google Scholar, SAGE Journals, Research Gate, Emerald Insight, DESE, NCES, Taylor and Francis Online, and ERIC

Institute of Education Sciences. The keywords searched included *technology integration, education finance, technology learning, public school budgets, school leadership, leadership, financial management, technology education management, financial allocation towards technology integration learning, government budgeting, government financial management, technology education expenses, government funding, Department of Education, public school culture, U.S. Department of Education, school finance allocation, professional development technology integration, TPACK framework, technology integration learning resources, financing technology learning devices, school technology financial planning, school budgeting, school technology finance, school leadership financial management for technology integration learning, financial management education, qualitative phenomenology, phenomenology research, data bracketing, conceptual framework, research framework, research trustworthiness, research ethics, qualitative methodology, and qualitative data analysis*. These searches provided ample coverage regarding the research topic. I searched each with similar words as listed. I feel that saturation occurred based on the number of documents reviewed in conducting the research study.

### **Conceptual Framework**

The framework established a logical connection between leadership planning and financial management concerning TIL. A qualitative study approach was selected to address the research question. Existing literature supports the notion that successful implementation of TIL to support 21<sup>st</sup>-century learners requires effective school leadership planning and financial resource management. The decisions school managers

make during the planning and budgeting stages of TIL will influence outcomes of technology use in classrooms.

My conceptual framework diagram illustrates this relationship by encompassing the TPACK framework developed by Mishra and Koehler (2006). Teachers' self-efficacy, professional training, and school environments are associated with the TPACK framework, which helps them process how to use technology for student education (Mishra & Koehler, 2006). Implementing TIL starts at the top of public-school systems, and therefore school leaders were chosen as a good source of data for this research study. If management at the top lack organization, and financial resources are mismanaged, public finance organizations can become insolvent (Brigham & Houston, 2021; Tkachenko, 2020).

By conducting a phenomenological study by interviewing school leaders who were experts in their field, I deduced alternative ways to manage TIL. Public school district teachers, principals, and administrators are identified as school managers, and therefore the responsible people charged with implementing TIL. School leaders also handle the financial management of school districts, including allocation of funds to support programs (Markson & Forman, 2021; Shemshack, 2021).

To achieve TPACK success, school district leaders must support the TPACK objectives, which takes planning and financial resources. For this study, TIL school leaders are those having 5 years or more of experience planning and implementing TIL in public schools. Mishra and Koehler (2006) developed a conceptualized framework illustrating TIL processes at the student–teacher interaction level. My framework

encapsulates the researchers' TPACK framework and expands to include a perspective regarding leadership planning and financial management influences on successful TIL. Mishra and Koehler developed a model to consider how content, pedagogy, and technology dynamically coexist amongst one another. The TPACK framework can be used to find pedagogical strategies that change educational knowledge when teaching technology.

Conceptualizing school leadership and financial management as the driving focus behind the TPACK framework gives visualization to a new dynamic associated with TIL. This research may help future public-school leaders understand how to overcome planning and budgeting restraints around TIL. Jung et al. (2016) explained that there are many variables playing a part in successful technology use, but two main predictors are teachers' beliefs that technology improves student learning, and their confidence levels in using TIL for educating. Teachers' perceived benefits of technology will positively influence their TIL use in classrooms (Jung et al, 2016). Ge et al. (2021) reported that students see technology devices as positive in the classroom, with some students saying they make learning easier.

Literature supports the idea that now is a time when implementing technology learning should be reviewed from different perspectives. According to this study's conceptualized framework, leadership planning and financial management are contributing factors influencing technology environments, culture, training, spending, and classroom experiences. The framework shows the importance of teachers' technology integration skills by presenting Mishra's and Koehler's (2006) framework. My

framework encapsulates that dynamic and visualizes the importance of leadership planning and financial management. These two factors influence the implementation of TIL. School leaderships plan how financial resources are allocated to support TIL, and how these funds are used to develop teacher technology skills for student education (Marie, 2021; Purtell & Fossett, 2018; Ugur & Koc, 2019). Changing how leaders plan and allocate funds may create positive social change that improves student learning experiences.

### **Literature Review**

Technology is a transformative and constantly evolving aspect of education. To effectively implement technology in public school districts, it is essential to provide all users with devices, software, and proper training. Classroom technology use with curriculum is suggested for today's youth because they depend on technology devices in everyday life. Managing technology requires a plan that includes budgeting, funding, and the successful implementation of these devices. TIL refers to using technology as a tool to enhance learning content (Shahbazi, 2020).

Research by Azizoglu (2020) demonstrated that technology use in Turkish schools led to improvements in students' writing abilities and increased their confidence in writing through digital environments. However, the integration of technology in schools comes with associated costs, such as salaries, employee benefits, equipment, technology supplies, and the acquisition of capital assets like smartboards (DESE, 2024). Additionally, creating innovative technology-based learning environments incurs

ancillary costs for logistics, repairs, maintenance, monitoring, tracking, and infrastructure upgrades (DOE, 2024).

In addition to physical asset expenditures, school districts will need to invest in professional development training for educators and administrators to effectively implement TIL (DOE, 2024). Teachers' self-efficacy in using technology is positively linked to successful TIL (Barton & Dexter, 2020). Information supports that TIL enhances student achievement (Barton & Dexter, 2020; Markson & Forman, 2021). The U.S. DOE (2024) has developed a 10-year, 50-billion-dollar plan, which started in 2017, for the purpose of improving school technology infrastructure. To advance the use of technology learning in public school classrooms, the allocated money supporting TIL is important.

Leadership planning and financial management decisions may improve student learning experiences and create social change. One necessity for TIL success is the technological abilities of teachers (Barton & Dexter, 2020; Mishra & Koehler, 2006). Professional development spending on formal, informal, or independent technology teaching activities added to teachers' self-efficacy regarding technology (Barton & Dexter, 2020). DOE upgrades will focus on school equipment and networking needs, installation of fiber optic cables for increased bandwidth, environment changes, and getting mobile devices to students and teachers for technology learning opportunities everywhere (DOE, 2024). Technologies such as AI and VR are new technologies being further introduced to K–12 environments (Fransson et al., 2020).



Educational environments are continuously evolving as better technologies produce positive results. In this future landscape, a blend of technology and traditional education remains essential, but clear communication between educators and students is paramount (Fransson et al., 2020). Chih-Hung and Chin-Chung (2021) have described mobile learning as particularly beneficial for students' learning effectiveness. The accessibility of vast amounts of information through mobile devices fosters greater engagement and active participation during the learning process.

Teachers and students need technological skills to operate technology for learning activities. Technology allows teachers and students to communicate instantaneously in classroom activities, making tech devices useful tools (Kucuk, 2023). For teachers to implement TIL in classrooms, they need long-term support from school administrators, which will create a culture of technology learning (Barton & Dexter, 2020; Kalimullina et al., 2021). A technology-driven culture prompts proper planning and allocation of resources to support technology tools as learning instruments (Johnson, 2020; Kalimullina et al., 2021). The U.S. DOE (2024) maintains that technology learning aids students' educational experiences and should be used alongside traditional learning practices.

Blended learning activities include technology learning along with traditional learning with paper workbooks (Marie, 2021). Using these two types of learning systems aids teacher–student interactions and creates flexibility while incorporating innovative learning experiences (Marie, 2021). A focus has been on the United States to close achievement and technology gaps, and this was demonstrated by 3 billion dollars being

raised to support the initiative during President Barack Obama's tenure (Bass, 2021). Three obstacles teachers face regarding blended learning environments are more work, a lack of funding to build proper programs, and time restraints to engage in online learning activities (Zhao & Song, 2021). Blended learning was found by Marie (2021) to be useful for innovative teaching approaches, creating effective learning environments for students, and creating self-learning opportunities using ICTs.

School principals implement financial management and program budgeting; however, their accountability lies with their employer first, and secondly the school governing body (Dwangu & Mahlangu, 2021). School organizations implement internal controls to prevent fraud, create reliability, establish compliance, improve school operations, and develop financial reports to inform the public (Dwangu & Mahlangu, 2021). Adjusting financial management practices may create social change around students' learning environments in the 21<sup>st</sup> century. Shahbazi (2020) explained technology integration as a change to traditional education, and technology leaders must understand the dynamics of change, to improve technology use.

Three key aspects towards changing school culture are gaining teachers acceptance for purposeful applied technology use in their classroom environments, their integration processes, and their experiences using technology (Shahbazi, 2020). Johnson (2020) defined technology leaders as individuals who can model technology, have strong interpersonal skills to learn technologies with others, can effectively integrate technology use in education exercises, engages in continuous training, and approaches teaching with a big-picture perspective. Advantages found from technology use are unlimited education

outlets online, a collection of work from others, and helps occupy student downtime. Disadvantages include limited face to face communication, less focus on written communication skills, increased cheating access, and students could form attention issues (Kucuk, 2023).

Research data suggests technology, pedagogy, and content knowledge in classrooms face two main barriers, time and resources, leading to less teacher confidence with technology use for learning (Hill & Uribe-Florez, 2020). Technology as a resource for education should be a focus in the information age, giving students the ability to obtain information quickly and efficiently from verifiable sources (Kucuk, 2023). Strategies used to integrate TIL are found to be reflected in the amount of technology use teachers demonstrate in classroom education (Hill & Urbie-Florez, 2020).

Changes towards incorporating the use of TIL will take financial resources and commitment from school leaders. Change of this nature will take strategic planning within public school systems. As Eisenhower said, “Plans are worthless, planning is everything” (Garcia et al., 2020, p. 1). Eisenhower is illustrating that plans need to be adaptive when obstacles occur, however conscientious of the overall goals, allowing the collective group to continue focusing on the big picture (Garcia et al., 2020).

When it comes to spending resources on technology devices, a measurable plan may hold organizational leaders accountable. The planning sparks change in the system. In public organizations accountability has transformed to the auditing practices of public accounting firms for compliance measurements; however, these figures rely on hard numbers and math calculations, shunning away from the emotion or “multiinterpretable”

decisions, limiting managers accountable for routine rather than results (Eriksen, 2020, p.262). School leaders construct budget processes in school districts focused on internal controls deterring fraud, whereas, focusing on a technology expenditures category is outside the normal function of accountability (Ireh, 2020).

School budgeting is built on estimated costs of operations, then taxes are estimated to cover costs, and debt securities are issued to cover any additional expenses for programs. This type of school funding is relevant for operational purposes; however, the planning is not focused on technology integration needs, or long-term planning, but rather estimated costs and debt bond renewals (Ireh, 2020). Capital budgeting decisions by school managers are critical to long term planning and may be beneficial because spending capital relates to acquiring fixed assets (Kader, 2019). As an auditor for public schools, I read different policies related to capital assets for technology, and generally school leaders determine a threshold for single item technology purchases.

An example would be that each computer or smartboard costing over \$1000 would be categorized as a capital asset purchase. Different accounting mechanisms can affect long-term planning when it comes to implementing TIL. Purtell and Fossett (2018) asserted government accounting is small pots of money dedicated to specific categories of expenditures such as travel, equipment, utilities, programs, etc. Government budgeting systems were designed to maximize control and prevent fraudulent activities (Purtell & Fossett, 2018).

It is standard practice for non-for-profit organizations to have a common mechanism for compiling financial resources, and public schools in Missouri do, as they

are governed by the Missouri Department of Elementary and Secondary Education (DESE). The DESE (2024) finance manual is the standardized governing structure of accounts that Missouri public schools follow, and requires school managers to track, account, and report financial data in a universal manner for interpretation purposes. This manual provides guidance to school leaders on how to prepare financial data for financial statement compilations, DESE required reports, and auditing practices (DESE, 2024). The manual has specific codes related to technology hardware, software, equipment, and technology supplies, which could be used for tracking technology expenditures (DESE, 2024). In the 21<sup>st</sup> century, technology devices have become standard communication apparatuses.

Reviewing ways to financially manage aspects of TIL can influence public school leaders across America. School leaders need to plan for learning environments changing, and standard technology devices become normal part of student education experiences. According to Ireh (2020), the average computer lasts 3 to 5 years. If eight schools supported computer labs, the estimated replacement cost would equal \$140,000 every four years (Ireh, 2020).

When budgeting for technology, awarding technology purchases only through bond revenues leads to a lack of technology maintenance and training. Exposing a system without proper maintenance leaves systems vulnerable, and breakdowns start to occur (Ireh, 2020). Rather than school leaders buying mobile devices, they could choose a lease model approach (DOE, 2024). A lease model eliminates risk by not owning the equipment, and establishes a regular budget, eliminating unexpected maintenance and

equipment replacement costs (DOE, 2024). Principals acting as technology leaders must have long-term planning commitments to allocate school resources supporting their vision (Ugur & Koc, 2019). There are many ways school leaders could fund technology devices, and proper planning to allocate funds is important for school systems across America.

The educational system of today emphasizes skill-based curriculum when teaching students, which helps them acquire lifelong learning skills and develop problem-solving skills through collaborative learning environments (Ireh, 2020). According to the Professional Standards for Educational Leaders (PSEL), an effective school leader must strategically plan, manage, and finance the overall goal of student achievement (Markson & Forman, 2021). Case and Harris (2014) conducted a study with 22 samples of schools' districts. They administered an online questionnaire focused on four groups with similar strengths, including individual autonomy, group identity, annual budget, leadership, and technology integration. The study included a category for percentage of annual budget spent on technology, and the researchers found school (a) in small urban spent 2.7%, (b) in large urban spent 2.8%, and (c) and (d) 1.8% of their annual budget on technology (Case & Harris, 2014). The study also revealed that students spend up to 25% of their day using technology, while teachers and administrators spend 30% (Case & Harris, 2014). These numbers indicate a contrast between schools' annual technology spending and the time ratio students and school leaders allocate to technology throughout the day.

Markson and Forman (2021) found the PSEL determines an effective leader strategically manages school resources to improve student achievement. Budgeting for technology requires leadership planning and implementation for success, and the school

leaders serve as the tone-setters within the organization (Ugur & Koc, 2019). The technology classroom culture is influenced by teachers' ability to foster technology integration conditions (Barton & Dexter, 2020). Classroom environments have an impact on student achievement, and school stakeholders found a culture related to technology-integrated learning plays a significant role in developing student's technological abilities throughout life (Kalimullina et al., 2021; Razak et al., 2018).

Zhao and Song (2021) discovered that technology-enhanced learning environments cultivate an advanced learning atmosphere that sparks student engagement. This data demonstrates the importance of preparing the classroom environment, which influences TIL. School culture and teachers attitudes toward technology use significantly influence TIL (Raygan & Moradkhani, 2022). Results from a study testing English as a foreign language (EFL) teachers showed that Technological Pedagogical Content Knowledge (TPACK) and teachers' attitudes are significant indicators predicting TIL (Raygan & Moradkhani, 2022).

Allocating budgeted dollars to support TIL may influence technology-driven environments, thus advancing students' learning experiences. The U.S DOE (2024) determines a standardized technology cycle of 3 to 5 years, after which computing devices should be resold, donated, salvaged, or recycled. A forward-thinking approach may facilitate better planning and financial management regarding technology expenditures. School leaders need to be aware of the challenges they face when implementing TIL.

Ge et al. (2021) focused on experiences amongst students exposed to educational technologies in classrooms and found mixed results among the students. However, they explained that students' enthusiasm plays a role, with less technologically able students being unenthusiastic, while experienced students using technology are enthusiastic. Students who are unenthusiastic about technology use may need more guidance, as even a smart classroom alone cannot spark technology interest (Ge et al., 2021).

Evidence shows team-based Professional Development (PD) for integrating classroom technology with pedagogy learning practices enhances students' technological interest (Dexter & Barton, 2021). Mishra and Koehler (2006) conducted a study that revealed PD related to pedagogical content knowledge helps construct a teacher's framework for teaching TIL. Their measurable TPACK framework demonstrates the roles that both technology and PD training play in the successful implementation of TIL. Kim and Jang (2020) discovered that sustainable technological integration heavily relies on a teacher's ability to effectively utilize technologies in the classroom. However, hiring technologically proficient teachers may result in increased costs for school districts, thereby raising yearly budgets.

Kim and Jang (2020) reported that teachers in smart classroom environments are motivated to continue implementing TIL based on students' reactions to the technology. Additionally, literature suggests that technology integration plays a crucial role in facilitating communication between students and their peers (Kucuk, 2023). The ability, willingness, and environment of educators all influence their use of technology during learning activities (Gonzales, 2020; Johnson, 2020; Shemshack, 2021). Exploring more



effective ways to train educators in technology integration may help school districts save financial resources. A professor from Brown University, Mr. Mathew Kraft, conducted over 60 studies where teachers received personalized one-one-one PD instead of the conventional large-group format. Kraft's research demonstrated clear benefits of personalized professional development (Horn and Goldstein, 2018; Kraft et al., 2018).

Smart classroom environments have become the new gold standard in TIL due to their ability to motivate teachers and create student engagement (Kim & Jang, 2020). Bass (2021) highlighted the positive impact of technology spending on student's proficiency, and schools that have access to program grant funding for technology can enhance the overall educational experience for students. By obtaining TIL grant funds, schools can reallocate initial technology resources from the general operating budget to support other important educational initiatives (Bass, 2021).

Yang and Baldwin (2020) found science, technology, engineering, and mathematics (STEM) learning environments provide students with opportunities for collaboration. Advanced technology teaching tools such as AI machines and VR simulators will significantly influence student learning environments in the 21<sup>st</sup> century (Lee & Perret, 2022). School leaders face challenging decisions regarding the allocation of financial resources to innovative technologies. However, AI and VR technologies are already impacting people's lives and the environments they inhabit. VR has been found to enhance students' creativity, thus facilitating learning opportunities (Fransson et al., 2020). AI machines have rapidly expanded in the 21<sup>st</sup> century, transforming people's

lives, and it is essential for students to have a fundamental understanding of these technologies (Lee & Perret, 2022).

System technologies like AI enhance people's technological operational abilities and aid in decision making. However, one associated risk with AI is bias, as AI systems can develop biases like humans (Meske et al., 2022). While AI and VR have the potential to benefit student education, school leaders must carefully manage unforeseen risks associated with these technologies, including the potential for negative social effects on less privileged students (Fransson et al., 2020; Lee & Perret, 2022). Implementing TIL is considered important by eight out of ten principals interviewed regarding technology professional development. However, only three of them demonstrated understanding in terms of planning, budgeting, and infrastructure development to support TIL (Ugur & Koc, 2019). Implementing a measurable metric or reward system for technology usage in classrooms could provide motivation to both teachers and students.

Increased technology usage may require larger budget allocations for technology expenditures. In public-school districts, principals are responsible for instructional planning, budget development, and supporting staff services to improve teaching practices (Shemshack, 2021). Principals who engage with external stakeholders to achieve educational goals tend to have a clearer vision on how schools should educate students and prioritize school resources accordingly (Shemshack, 2021). Achieving success in managing the financial resources of an organization, including technology integration, requires the collective efforts of multiple individuals or positions within the

organization. Involving teachers in decision-making processes related to technology spending may have a beneficial effect on the success of TIL.

### **Summary and Conclusions**

According to information in the literature review, TIL has many moving parts and needs financial resources to be sustainable in the 21<sup>st</sup> century. For school leaders to orchestrate TIL, which is found to benefit student achievement, school principals and stakeholders must collaborate on budget preparation and execution (Dwangu & Mahlangu, 2021; Markson & Forman, 2021). Two key components in conducting quality financial management are leadership strategic planning, and allocation of resources towards organizational goals. Strategic planning and budgets should be based on group decisions, including school leaders and external stakeholders. However, principals are ultimately held accountable (Dwangu & Mahlangu, 2021).

Principals play crucial roles as the school tone setters, and creating a culture demonstrating quality financial management of resources helps build employee trust in the process (Dwangu & Mahlangu, 2021; Ugur & Koc, 2019). Markson and Forman (2021) discovered that students exhibit increased long-term knowledge retention when exposed to technology-enhanced classrooms. The classroom environment, professional development, budgeting, culture, and student engagement are all key factors that influence the implementation of TIL (Barton & Dexter, 2021; Zhao & Song, 2021).

There is a gap in the literature regarding the role leadership planning and financial management play in influencing TIL implementation. To address this gap, it is important to learn from the experiences of field experts to identify any shortcomings in school

leaders' skills in planning and budgeting TIL. Researchers have found that technology spending per pupil only varies slightly, at 7.95% across different school district budgets. This means school leaders can leverage student achievement without significantly increasing their technology per pupil spending (Bass, 2021; Markson & Forman, 2021). Planning budgets accordingly reduces adjustments later, saving time and resources.

### Chapter 3: Research Method

The purpose of this study was to deepen the understanding of leadership planning and financial management in the context of implementing TIL in public schools. By conducting a qualitative phenomenological study involving school leaders, I shed light on this topic and uncovered new insights. The findings of this study have the potential to be transformative and contribute to positive changes in student learning experiences. By updating educational practices, we may create positive social change.

Specifically, through this research, I aimed to advance budgeting and allocation practices when implementing TIL in public school classrooms. By focusing on the planning and financial management aspects of TIL, it is possible to explore new perspectives and uncover innovative approaches. The firsthand lived experiences of the study participants were a valuable source of rich data, allowing for a deeper understanding of the challenges and successes associated with implementing TIL (Ravitch & Carl, 2020). Given the ever-changing nature of technology, it is crucial to stay informed about the latest advancements and explore new avenues for collaborative and interactive learning for students.

In the future, educators may utilize technologies in unfathomable ways, as AI, biotechnology, VR, and virtual argumentation become more commonplace in education. VR and AI have the potential to provide students with immersive experiences by placing them in simulated realities, allowing for real-life scenarios and personalized learning opportunities (Pence, 2020). It is crucial to explore the integration of these technologies

in classrooms to enhance student experiences and create a more personalized learning environment (Pence, 2020).

School management plays a significant role in shaping the culture within a school environment, which in turn influences the technological abilities of both staff and students (Barton & Dexter, 2021). The study gathered data by examining how school management plans and allocates budgeted funds towards the advancement of TIL. By analyzing these practices, I gained insight into the decision-making processes and approaches taken by school management.

The research approach was phenomenological, aiming to capture the perspectives and lived experiences of participants. This methodology seeks to illuminate common themes, topics, and ideas by closely examining the data collected and analyzed (Groenewald, 2004). By delving into the lived experiences of school leaders, I gained a deeper understanding of their perceptions and practices regarding leadership planning and financial management in relation to TIL implementation.

### **Research Design and Rationale**

The research design was based on the study's research question: What are the lived experiences of Missouri public school leaders when it comes to the planning and financial management aspects allocating budgeted dollars towards implementing technology integration learning in classrooms?

By using a phenomenological qualitative research approach, this study addressed the gap in understanding the significance of leadership planning and financial management in the context of TIL within public school districts. The landscape of

education in the 21<sup>st</sup> century has evolved significantly, driven by the ubiquitous presence of mobile technology devices that enable instantaneous connectivity across geographical boundaries. In this information age, it is crucial to explore new and innovative educational approaches that align with the demands of modern job markets.

Today, students are exposed to technology from an early age, often learning to use it within the confines of their homes. Understanding how public-school systems can effectively create optimal learning environments is of paramount importance. This study examined the planning and financial management strategies employed by school leaders when implementing TIL. By incorporating a phenomenological research approach, I gathered rich and descriptive data from individuals who had firsthand experience in this context.

Through the analysis of these lived experiences and subsequent analysis, valuable insights are gained to enhance the understanding of leadership practices and their impact on TIL implementation (Neubauer, 2019). A phenomenological approach was chosen because it allows for the collection of descriptive data from unique individuals, with their lived experiences analyzed among peers (Ravitch & Carl, 2020). Phenomenological research involves seeking to describe the essence of a phenomenon by exploring the lived experiences of individuals and understanding the meaning behind those experiences (Neubauer, 2019). A phenomenologist researcher starts as an investigator, then evolves and becomes an observer-participant, meaning they observe and gather information during the data collection and actively participate during the data analysis process (Groenewald, 2004).

By choosing a phenomenological approach, it was imperative to acknowledge that biases exist and to strive for neutrality. To achieve this, I kept a reflective journal during the data collection and analysis process. This approach was chosen to gather firsthand information from sources relevant to the topic (Rubin, 2022). In interviewing school leaders, I hoped that their rich, firsthand knowledge could reflect experiences surrounding leadership planning and financial management in implementing TIL. Learning from these firsthand experiences may lead to positive social change. Innovative planning and financial management accountability could revolutionize how students interact with technology in classroom environments.

Technology integration can potentially increase student achievement if done correctly (Hall, 2019). In conducting semistructured interviews with school leaders, first-person experiences are gathered, generating rich, deep data regarding the financial management of TIL (Creswell & Poth, 2018). This research approach was chosen because the lived experiences of the participants, based on criterion sampling, may expose new themes and ideas regarding school resources and spending habits influencing TIL.

### **Role of the Researcher**

Research study types determine the role of a researcher. For my qualitative phenomenology study, my role as the researcher was an observer-participant. A qualitative phenomenology researcher expects to gain deep, rich thoughts and emotions from the participants during the interview process (Dorfler & Stierand, 2021). A phenomenologist observes participants' perceptions and beliefs to understand the full



essence of the phenomenon (Dorfler & Stierand, 2021; Groenewald, 2004). During the interview process, I collected participants' answers and worked to capture the essence of their experiences with planning and financial management supporting TIL.

I did not have any professional or personal relationships with any participants. During the interviews, I was a neutral observer. However, my role as a researcher was to gather quality, reliable information; therefore, I asked follow-up and probing questions if provided answers were unclear. Groenewald (2004) affirmed that a phenomenologist researcher aims to accurately articulate the phenomenon by remaining true to the facts.

A phenomenologist researcher is "concerned with understanding the social and psychological phenomena" (Groenewald, 2004, p. 44) based on the perspectives of participants. This involved being aware of technology integration management and having enough topic knowledge to ask intrusive follow-up questions when needed. Sometimes participants' answers sparked other ideas, and when this occurred, additional queries were made. When the data validation process began, I transitioned to a participant, as my work involved finding common themes, ideas, and similarities within the data collected.

Researchers may enhance the accuracy of information by being creative and passionate about their recollections during interviews, adding context to the data (Xue & Desmet, 2019). I used data bracketing after the data collection process was completed based on transcendental phenomenology. Bracketing allowed me to overcome objectivism while explicating information (Dorfler & Stierand, 2021). During the bracketing phase of research, "epoche, or phenomenological attitude" reduction was used

to make sense of participants' lived experiences and the context behind those experiences (Dorfler & Stierand, 2021, p. 784).

While conducting my activities, I remained unbiased by using reflective journaling as a tool. My study produced information surrounding the phenomena of TIL, and specifically leadership planning and financial management. As a researcher, it was important for me to refrain from judgment during an epoche phenomenological study, and rather focus on the emotions, feelings, and impressions of participants during their lived experience recalls (Dorfler & Stierand, 2021). My role as a researcher was determined by the qualitative phenomenological approach being used.

### **Methodology**

Structuring a research format depends on how a researcher wants to obtain study results. The methodology chosen for this study design was a phenomenological approach, where data were collected from participants relevant to the study's topic and participants were asked interview-style questions based on their lived experiences (Groenewald, 2004; Neubauer, 2019). Data collection occurred by interviewing field experts who qualified as having 5 years of experience using TIL in a public-school classroom. The number of years it takes to thoroughly understand the components involved in an expertise role was based on the 10,000 hours rule, which indicates that the average human needs 10,000 hours of dedicated practice of a trade to be considered an expert in that field (Gladwell, 2009). This purposeful sampling technique, based on criteria, allowed the data to be rich in information (Palinkas et al., 2015).

Every participant answered 10 specific questions deemed likely to generate valuable insights into leadership planning and financial management in implementing TIL. My interview questions were open-ended and developed to provoke thoughtful responses from the interviewees' recalled experiences (Ravitch & Carl, 2020). Interviewing participants was an effective way to gather rich data regarding the phenomenon being studied, as participants divulged their past lived experiences (Ravitch & Carl, 2020).

In this study, data were gathered through individual interviews with participants. The analysis was conducted using Groenewald's (2004) five-step process, which was based on Giorgi's descriptive phenomenological method. These interviews served as the primary data source for the research. The process involved a systematic approach to summarizing the data collected during the phenomenological study (Giorgi, 2010; Stolz, 2022).

To ensure the trustworthiness of the findings, I employed member checking, which allowed participants the opportunity to review and confirm my interpretation of their interviews. Member checking was a crucial step that helped eliminate biases and added validity to the research results (Groenewald, 2004).

The study aimed to answer the research question presented in the first chapter. By following the structured analysis process and involving participants in the validation of the interpretation, I sought to accurately represent the lived experiences of the participants. The final step of the research involved summarizing the explicated data and

presenting the study's findings based on the insights derived from the interviews and data analysis process.

From my experiences as a budget analyst in a public school district, I understood that school leaders were responsible for planning and allocating budgeted dollars towards TIL. The aim of this study was to understand school leaders' planning processes and financial resource management practices to support TIL programs in the 21st century. The U.S. DOE (2024) created a plan to update public school facilities with new technology infrastructure. Fifty billion dollars from 2017–2027 are to be spent on technology upgrades, device purchases, technology infrastructure, and technology-driven professional development training (DOE, 2024). School leaders could advance TIL with this influx of federal dollars if they stay committed to cultural changes supporting TIL (DOE, 2024). This type of educational funding could rejuvenate school environments. Creating ICT learning environments might spark social change, enhancing students' educational experiences throughout Grades K–12.

Creating these experiences for students and educators requires school leaders to allocate financial resources towards developing TIL by purchasing devices and equipment. Interviewing participants allowed me to document deep firsthand experiences around the planning and budgeting processes they had encountered. From these interviews, with the acknowledgment and acceptance of each participant, I collected audio recordings of each interview and took field notes. All data collection devices were stored in a fire-resistant lock box, with materials labeled by date, time, and location of the

interview. Each interviewee was assigned a code such as L1, L2, L3, and so on, with L indicating Leadership and the numerical number reflecting the order of completion.

To analyze the data, I entered interviewee responses into Microsoft Excel and used Teammate Analytics to identify statements of relevance. To clarify any misunderstood responses, I provide comments for better understanding. If clarifications were needed, the interviewee's context remained relevant and was used to maintain impartiality. Additionally, I used bracketing to explicate the information. The explication process involved finding units of meaning within the data and developing common themes exposed within these units. During the data analysis process, I reviewed all data collection materials, including field notes, audio records, and my reflective journal. I used an introspective-reflective approach regarding the subjective experiences from design while documenting and analyzing the data (Xue & Desmet, 2019). Finally, I presented the relevant information found during the research study.

### **Participant Selection Logic**

To complete my qualitative phenomenology study on leadership planning and financial management in implementing TIL, I identified field experts in school technology integration management to comprise a sampling population. The sampling population consisted of individuals who were well-informed and could be queried about the research topic (Kader, 2019). Field experts included school administrators, principals, and teachers with 5 years of experience implementing TIL.

A criterion sampling strategy was selected to provide important qualitative components for rich, detailed data (Palinkas et al., 2015; Ravitch & Carl, 2020). School

leaders with 5 or more years of lived experience implementing TIL were recruited. The criterion strategy added credibility based on the sources level of expertise in their respected fields (Rubin, 2022). These participants were selected because they met the criterion characteristics of having unique lived experiences that enhanced the study's trustworthiness (Rubin, 2022). Interviewing these participants regarding the planning and financial management of TIL produced rich, in-depth, informative data (Ravitch & Carl, 2020).

Analyzing the information aimed to answer the study research question. Identifying connecting themes and ideas, then bracketing meaningful data, illuminated group thinking (Dorfler & Stierand, 2021). The sample size ranged between 11–15 or until data saturation occurred. I recruited participants from three Missouri public school districts. Each participant was interviewed either via video conferencing or in person. All participants remained anonymous. Notes were created based on my perception of the answers for the study. Snowball sampling was used, which involved finding research participants by asking current participants if they could recommend others for the study (Groenewald, 2004). This method allowed me to have mutual acquaintances with participants and helped in finding individuals who met the criterion sampling requirement.

### **Procedures for Recruitment, Participation, and Data Collection**

- I gained Institutional Review Board (IRB) approval to begin the recruitment, participation, and data collection process.
- I engaged with three Missouri public school districts to gain participation.

- I conducted interviews with participants to collect data.
- Data collection occurred by in-person interviews and video conferencing.
- Each interview was expected to last 45–60 minutes, depending on participants' answers and clarifying questions.
- Study notes were taken throughout interviews to gather responses, along with audio or video recordings.
- Participation was lagging in the first two Missouri public schools, and another one was recruited.
- All participants consented to the interviews prior to being interviewed for data collection.
- Participants' information and responses have been kept private.
- After reviewing transcriptions, I completed member checking and asked follow-up questions if needed to probe for clarification of answers deemed relevant to the topic.

### **Data Analysis Plan**

Organizing the information was crucial from start to finish during the data analysis process. I followed ethical procedures outlined by Walden University's Institutional Review Board (IRB). To analyze the data collected, I used tactics meant to expound on the data in its entirety. Phenomenological researchers work to assign meaning to units of data, then cluster the information, write descriptions, and analyze the data until an understanding of the lived experience is achieved (Neubauer, 2019). The following list describes my actions from start to finish during the data analysis process.

- All data collected pertained to the singular research question presented in this study based on 10 interview questions.
- Explication of the data identified common themes found inside the data.
- Microsoft Excel along with Teammate Analytics software was used for bracketing meaningful data. Statements of relevance were identified .
- Discrepant cases were included in bracketing information from the data.
- Reflective journaling was conducted during the data collection process to summarize and reflect on information and minimize biases.
- Provided an understanding of the lived experiences of participants based on bracketing meaningful statements found in the data.

### **Instrumentation**

In qualitative phenomenological studies, researchers delve into participants past lived experiences. Husserl rejected the belief that “objects in the external world existed independently” and argued that people could only be certain about things presented to themselves through their consciousness. Therefore, he emphasized that certainty should be attributed only to experience and advocated for eliminating or reducing the external world from personal consciousness (Groenewald, 2004, p. 2). To gather rich descriptive data, individuals' lived experiences inside their minds, which create realities, were treated as phenomena to capture phenomenology data (Groenewald, 2004). Phenomenologists provide a phenomenon with an avenue to convey a message or image, like how poets or painters share their insights artfully with others (Groenewald, 2004).



Data were collected through semistructured interviews with participants, either in person or via video conferencing. This process allowed me to gather rich, detailed, and descriptive information with open-ended questions designed to elicit insightful responses from participants (Carl & Ravitch, 2020). Additionally, follow-up, continuation, or clarifying questions were asked as needed. Notes were taken throughout the interviews, along with audio recordings for data analysis. Documentation was labeled with study notes to keep the material organized and safe.

### **Data Analysis**

To gather information regarding leadership planning and financial management centered on implementing TIL, a phenomenological qualitative design was chosen. The focus of this study was to gather lived experiences from school leaders including administrators, principals, and teachers in Missouri public school with five years of TIL experience. Phenomenology is a theoretical philosophy of the mind, and the way researchers transfer these ideas to concepts is by bracketing (Dorfler & Stierand, 2021). A phenomenological research method can be successful with a proper data analysis approach, capable of providing explication of the data (Groenewald, 2004). While analysis means breaking down information into parts, explication of data means the research is given a chance to include all information in a context built around the entire phenomenon (Groenewald, 2004).

Stolz (2022) outlines Giorgi (2010) descriptive phenomenological descriptive method, which is based on Edmund Husserl transcendental phenomenological approach (Giorgi, 2010). Transcendental phenomenology involves three core steps within the data

analysis process to address (Giorgi, 2010; Stolz, 2022). These steps include reading full descriptions in entirety, identifying meanings of units, and researchers must transform data descriptions into useful “phenomenological psychological attitude” types of data (Giorgi, 2010; Stolz, 2022, p.3). These steps capture the essence and structure of the participants’ lived experiences (Stolz, 2022). The data collected was explicated by using the following five step process outlined by Groenewald (2004), which extracted the data. Table 1 explains each step of the process.

**Table 1**

*Five Steps to Achieve the Explication of Data*

Step #	Step description detail
1	Bracketing and phenomenological reduction occurs from the data.
2	Delineating units of meaning from the data.
3	Clustering of units of meaning to form themes.
4	Summarizing each interview and validating it when necessary and modifying where necessary.
5	Extracting general and unique themes from the interviews and making a composite summary.

*Note.* The table outlines Groenewald’s (2004) five-step process for completing explication of data.

These steps include key parts identified for conducting a transcendental phenomenological approach based on Giorgi’s descriptive phenomenological method (Giorgi, 2010; Stolz, 2022). Qualitative data analysis software’s (QDAs) such as Microsoft Excel and Teammate Analytics were used to aid in the organization, sorting,

and interpretation of the data collected. Microsoft Excel software was used to conduct the 5-step process. Teammate Analytics generated reports and organized the information from each participant. Using software assisted in illuminating key elements derived from the data collected. QDAs efficiently and effectively helped organize and code patterns in the data, allowing for visualization of common themes.

During the data analysis process, it was important to be unbiased towards participants, and required syphoning through all data collected (Neubauer, 2019; Stolz, 2022). Once bracketing and reduction occurred, I delineated units of meaning into statements of relevance. Next, I categorized each statement of relevance and developed common themes. This step further eliminate biases. I summarized participant responses and validated by member checking, which involved follow-up emails to each participant with the summarization of their interview included, to validate their holistic context of the phenomena was captured. Lastly, once the subjectivism is captured by each participants summary, common themes were extracted to create a composition summary of all data collected (Groenewald, 2004: Stolz, 2022).

All materials collected as part of the data gathering process were stored in a lockbox, and labeled with participant assigned characters, date, time, and location of interview. Data will be stored for 5 years after the study is completed. Audio recordings and field notes were used for recalling context, emotions, and subtleties involving participant responses. Notes and recordings were analyzed for missed or misunderstood information and used for review throughout the data analysis process.

By using a reflective journal during the data analysis process, biases were minimized, and the study produced informative insight (Lutz & Paretti, 2019). From my experiences, the time spent expressing thoughts and emotions during the journaling process was cathartic. Reflective journaling allows reflection, and summarizes the data collected at certain points in time (Lutz & Paretti, 2019). Reflective journaling allows researchers to better understand each participant's lived experiences (Lutz & Paretti, 2019). Once the data analysis process became complete, I formed meanings of units, ideas, and common themes which will be explained in the study results.

### **Issues of Trustworthiness**

#### **Credibility**

The criterion sampling created study credibility because participants have 5 years or more experience managing TIL, leading to confidence in the results. Credibility is the trustworthiness of a study to confirm the researcher developed findings to be plausible and quality (Rubin, 2022). Finding credibility can be determined by the researcher interviewing participants who are well-informed about the research study concerns because the characteristics of a message's source account for credibility (Rubin, 2022). Therefore, a qualitative phenomenology study involving interviews with knowledgeable participants was chosen for the data collection process (Groenewald, 2004). This approach allows the researcher to gather lived experiences from individuals who are familiar with the phenomena being studied.

Reliability is determining a research instrument reports results and data properly (Kader, 2019). For this study, a purposeful criterion sampling strategy was chosen,

selecting field experts with 5 plus years implementing TIL. Five years' experience is required to be a field expert from Gladwell (2009) who describes the rule of 10,000 hours, meaning it takes 5 years at two thousand hours worked each year to be considered an expert in a field. Math equates to 40 hours a week, for 52 weeks a year, minus 2-week vacation. This equals 10,000 hours. Microsoft Excel was the software used for data explication. Data explication included bracketing during the data analysis process, then identifying common themes (Groenewald, 2004).

I used a reflective journal to minimize any personal biases within the data collection process to create internal validity (Ravitch & Carl, 2020). My reflexivity process was focused on the research problem. By working as an observer-participant, and utilizing a reflective journal during the study, I was able to limit my exposure to biases (Ravitch & Carl, 2020). Credibility is one of the most important traits a communicator can demonstrate because it places confidence within their audiences (Rubin, 2022).

### **Transferability**

The use of criterion sampling increased rich data from participants to generate key concepts within a phenomenon, and the approach achieved transferability until the study completion (Ravitch & Carl, 2020). The methodology of gathering rich, descriptive lived experiences from participants is crucial for ensuring external validity (Ravitch & Carl, 2020). Transferability is achieved through data collection using the lived experiences of specialized leaders, a key criterion for the sampling population. This approach generated rich, descriptive data (Ravitch & Carl, 2020). Thick descriptive data was collected from

transcribed interviews with each participant, ensuring transferability (Lemon & Hayes, 2020).

The data explication process involved bracketing meaning of units by utilizing software such as Microsoft Excel and Teammate Analytics. By gathering deep, rich data and employing measures to eliminate biases, such as bracketing and reflective journaling, the study ensured transferability and replicability if followed properly (Ravitch & Carl, 2020). In addition to transferability, dependability is also essential.

### **Dependability**

Dependability is essential for understanding how a study occurred, and if it can be replicated. To ensure dependability, I created an audit trail by documenting interviews, taking field notes, reflective journaling, and data bracketing. Dependability makes distinctive assertion the findings happened at a specific time and place using explanations (Lemon & Hayes, 2020). The audit trail described processes used to create the research findings and can be replicated in a new study. Any changes to setting context were recorded and provided in Chapter 4.

Categories were established during the data analysis process to determine common themes and ideas regarding leadership planning and financing management implementing TIL. I used Microsoft Excel and Teammate Analytics during the data analysis process to identify triangulation, because triangulation reenforces credibility (Lemon & Hayes, 2020). Data materials were safely stored in a lockbox during the study. Materials were labeled using participants assigned characters, date, time, and location of interview. Measures taken during the research increased dependability of study results;

however, it is possible a different group of participants experience different findings (Creswell & Roth, 2018).

### **Confirmability**

To confirm the accuracy of the data collection process, researchers provide truth from the sources used. Creating confirmability inside the study findings is dependent on participants' lived experiences, and the researcher's ability to remain unbiased throughout the data analysis process (Lemon & Hayes, 2020). Reflexivity was used on the rich, in-depth descriptive data collected to ensure confirmability (Ravitch & Carl, 2020). Biases were minimized by using a reflective journal, keeping my feelings and emotions controlled, allowing reasoning, and establishing confirmability (Ravitch & Carl, 2020).

A researcher acts as a conduit through which information flows naturally during the interview process. By acknowledging the existence of biases, actions were taken to prevent them from influencing the study results. During the study, all assumptions and preconceived notions were reflected in the data collection and analysis process. Using data bracketing as a methodological tool limited my exposure to bias. Researchers create a dichotomy between themselves and participants, based on different levels of understanding the phenomena (Dorfler & Stierand, 2021).

### **Ethical Procedures**

Permission for approval # 11-13-23-0996337 was sought from the IRB to conduct this research in accordance with all ethical standards of research presented at Walden University. The IRB provided input related to participants, and no one under the age of

18 was an allowed participant. Research was conducted with ethical considerations involving all aspects of the study to avoid misleading practices (Creswell & Roth, 2018). Criterion sampling was used in accordance with all Ethical Standards included in the Institutional Review Board (IRB) application.

Participants consented prior to interviews via email by responding “I consent.” Participants’ anonymity was kept private. If anyone felt uncomfortable during the interview, they could have chosen to quit and not participate. Any of those materials would have been excluded from the research study. Three different days and times were offered to participants for answering interview questions. The interview atmosphere was a conference room inside a local library, equipped with table and chairs for the participant and I (Ravtich & Carl, 2020). Coffee, water, and snacks were provided throughout the interview process. Participants were asked if notes and audio recordings may be taken during the interview. Each participant was assured any notes or audio recording will be kept confidential. I used the material until the study was completed. To provide participant anonymity, no participant names, personal information, or characteristics will be used for identification.

By using a sampling criterion, participants had 5 years of experience implementing TIL in a public school district. Information regarding participants was labeled and referenced by the first letter L, meaning leader, followed by a numerical number assigned. Participants were identified as the following, L1, L2, L3, L4 etc., until all participants have been interviewed. Throughout participant recruitment, interviewing participants, and conducting follow-up from participants, I acted in a professional



manner. To be considered professional, I was polite, informative, responsive, and transparent with participants during the interview courtship and process.

It was important during the study to act in an ethical manner and provide confidentiality to data sources for ensuring integrity occurred during the study (Lemon & Hayes, 2020; Ravitch and Carl, 2020). Qualitative researchers must recognize their ethical practices based on subjectivity importance being studied, as the researcher is co-creator of the data, with the participants (Creswell & Roth, 2018). Along with my personal ethics as a researcher, I followed all guidelines and recommendations set forth by the Institutional Review Board (IRB). Transparency and accountability was created during the data collection and analysis process because of the standards set forth by the IRB and Walden University.

### **Summary**

Understanding methodology techniques is a critical part in the transferability of a research study (Ravitch & Carl, 2020). Throughout this research study, ethical standards around data collection and analysis had an impact on the trustworthiness of research (Ravitch & Carl, 2020). This study has external validity because I used criterion sampling and collected rich descriptive details from the lived experiences of participants (Lemon & Hayes, 2020).

A reflective journal was kept during data collection and analysis to minimize biases, as Ravitch and Carl (2020) found journaling helps researchers gather unbiased understanding of the data. Lutz and Paretti (2019) found weekly reflections offer unique insight during learning periods. Ethical standards were followed during this research

study in accordance with Walden University's Institutional Review Board (IRB). I requested the IRB accept my proposal and allow this research study. This study provides information focused on the planning and financial management of TIL, leading to educational experience improvements for students. Bracketing statements of relevance may create positive social change by illuminating innovative strategies focused on TIL implementation.

Common themes were found in the described experiences from participant data. These themes tell a story of real-life experiences from different individuals, all with similar situations. Within these common experiences, themes emerged. The places where these similar experiences occur provided quality information for theme development. A summary detailing how these common themes were exposed is provided in Chapter 4. Additionally, I outlined a plan and suggested future research regarding this phenomenon.

Innovative technologies such as AI and VR are pioneering interactive and collaborative learning environments for students (Pence, 2019). The U.S. DOE (2024) explained the infrastructure upgrades needed in schools to improve connectivity between teachers and students via internet access. Many rural areas lack high-speed broadband internet, and K-12 bandwidth demands have been increasing at a rate of 50 percent (DOE, 2024). With the use of more technology devices in classrooms, infrastructure upgrades are forcing districts to support these modern technology expenses.

The study explores how school leaders can proactively budget for technology infrastructure and maintenance costs. Innovative ideas to enhance the management, finance, and expansion of technology use should alter student learning experiences,

creating social change. Brigham and Houston (2021) described the economist's notion that an asset's value is based on future cash flows produced by that asset. In education, the asset being measured is student achievement. Exploring the allocation of financial resources when managing TIL may address challenges the U.S. DOE (2024) is facing regarding implementing technology learning.

In the 21st century, infrastructure has failed to keep up with technology devices, causing missed opportunities for using technology in educational settings (DOE, 2024). When technical errors occur during lesson activities, teachers develop hesitancy in creating technology learning activities (DOE, 2024). The U.S. DOE (2024) explains that inadequate broadband access and slow computer speeds negatively impact employee efficiency and productivity. These technological issues have caused staff members to miss professional development opportunities presented strictly through internet connectivity (DOE, 2024).

Another area of interest regarding this phenomenon is what motivates students and teachers to engage in TIL. Pence (2019) asserted that teachers are the best motivators to increase student achievement through technology learning activities. Schools allocating money geared towards student motivations and inspirations could be a future qualitative study. Study findings may lead to positive social change, affecting student school experiences and learning environments. New ways to visualize TIL may position school leadership to support TIL with new financial allocation methods, changing the way students experience learning.

## Chapter 4: Results

The purpose of this study was to understand the lived experiences of school leaders in planning and financial management for TIL in public school classrooms. The qualitative study proposed the following research question: What are the lived experiences of Missouri public school leaders when it comes to the financial management and planning to manage budget dollars towards implementing technology integration learning in their classrooms?

In this chapter, I present the research setting, demographics of participants, data collection and analysis methodology, evidence of trustworthiness, results, and a summary.

### **Research Setting**

Criterion sampling was chosen to distinguish school leaders with 5 years or more of experience planning and budgeting for TIL in public school classrooms. All interviewees held positions in a Missouri public school and met the criteria to participate in the study. The settings of participants in these school district environments included well-being in general, along with environmental changes, stress level fluctuations, fast-paced work areas, work relationship dynamics, task completion pressures, time constraints, stakeholder conflicts, community engagement responsibilities, and both personal and career challenges.

Different emotional stages of participants could have affected their experiences; therefore, individual settings may influence the interpretation of the study results. Interviews were conducted in community library conference rooms or other public areas

where privacy was ensured. Phone calls and email communication were exchanged regarding follow-up questions, interview transcripts, and member checking procedures.

### **Demographics**

Demographics for study participants are summarized in Table 2. A total of 11 participants were interviewed, all meeting the sampling criteria chosen for the study. Participants were school leaders working in a Missouri public school district. I recruited them from three local districts in the central eastern portion of Missouri. Of the 11 volunteers interviewed, four were administrators, three were principals, and four were teachers.

The study included three men and eight women as participants. In their distinctive roles, administrators manage school principals, principals manage schoolteachers, and teachers are responsible for educating students. Each role is unique, with complex duties in managing community education. Administrators align with senior-level management, principals with mid-tier management, and teachers as employees. All roles are designed to influence positive change in the educational lives and experiences of students.

This study examined a combined total of 208 years of experience in public education. All participants had more than 5 years of experience planning and budgeting for TIL activities in public school systems. Each leader had their own experiences that shaped their leadership characteristics. However, situational leadership was demonstrated by participants when it came to managing TIL. "Technology is always changing," said L9, indicating that situational leadership skills have been applied and developed by experienced school leaders.

I collected four demographic data points with questions including (a) gender, (b) age group, (c) years of experience, and (d) leadership level. Participant demographics provided context to responses based on leadership criteria such as age range and years of experience. Table 3 includes participants' responses to the demographics sheet, which is provided in Appendix E.

**Table 2**

*Participant Demographics*

Participants	Gender	Age group	Years of experience	Leadership level
L1	F	31–39	16	Teacher
L2	F	22–30	6	Teacher
L3	M	51–60	25	Teacher
L4	F	51–60	31	Administrator
L5	F	40–50	22	Principal
L6	M	40–50	25	Administrator
L7	F	31–39	16	Principal
L8	F	40–50	18	Administrator
L9	F	31–39	15	Administrator
L10	M	40–50	22	Principal
L11	F	31–39	12	Teacher

*Note.* Table 2 provides four demographics from each participant, including gender, age range, years' experience, and leadership level.

## Data Collection

Data were recorded during the interview process with participants. Leaders were interviewed independently and asked to answer 10 interview questions based on their lived experiences related to the study topic. The interview questions are provided in Appendix A and were developed to address the research question presented in this study.

Interviews were conducted in conference rooms at local libraries that provided a quiet and private setting. Each interview consisted of the researcher and the participant, along with an iPhone for recording purposes and a legal notepad for notes. Each participant had consented prior to the interview and was informed that they could leave at any time and did not have to answer any questions they did not feel comfortable answering. Participant responses were recorded and collected to preserve for the data analysis process.

Two variations from the data collection plan in Chapter 3 occurred, including recruiting three public school districts instead of two, and interviews lasting 30 minutes. Due to snowball sampling for recruits, I found participants at another public school district. By gaining access to another district, I recruited more participants meeting the study criteria.

Interviews were initially expected to last 45–60 minutes; however, the average interview time was about 30 minutes. Follow-up questions were asked when needed throughout the interview for clarity or to drill down a response. Interviews continued until data saturation occurred. Near the ninth participant, responses were becoming redundant, and two additional interviews were completed to reach data saturation. All

participant responses and demographics were saved in a lockbox. Study materials will be retained for 5 years. In the next section, I will discuss data analysis procedures.

### **Data Analysis**

The objective of the study was to gather insightful information from school leaders based on the interview questions presented in Appendix A. The interview questions were designed to elicit responses related to planning and financial management aspects for implementing TIL in public schools. The data analysis method followed Groenewald's (1994) five-step process for explicating data. Responses from participant interviews were recorded, and transcripts were reviewed, revised, and organized to ensure clarity of data. The final step involved bracketing statements of relevance into categorized themes.

Interview questions were developed specifically to gather information that would help address the study's research question. Member checking was conducted after transcripts were summarized for clarity to ensure the accuracy of my interpretation of their answers. Participants were given the opportunity to review transcripts and adjust accordingly. Each relevant statement was categorized to best capture the sentiment of the data. While occasionally a statement of relevance could relate to two possible themes, each statement was ultimately categorized under only one theme.

Interviewee responses were recorded, transcribed, and inputted into Excel. Each transcription was stored alongside participant demographics. Data evaluation and bracketing statements of meaning were completed to formulate statements of relevance based on responses to the interview questions. Each interview transcript was reviewed,



and relevant statements were coded in red. Additionally, each statement was marked with either an A for administrator, P for principal, or T for teacher.

Once all interviews were coded, each statement of relevance was categorized based on similarity of message, resulting in the identification of seven unique themes. These themes have the potential to influence positive social change regarding the planning and financial management aspects of TIL.

### **Evidence of Trustworthiness**

#### **Credibility**

To demonstrate study credibility and abide by Walden University's ethical standards, I was granted IRB approval on November 24, 2023. Following IRB guidelines, I acted prudently throughout the study process. During data collection, I kept a reflective journal to counter bias. When conducting data analysis, Groenewald's five-step method was used, ensuring that evidence is based on proven phenomenological study trustworthiness (Groenewald, 2004). Chapter 3 further details the data analysis steps completed.

To verify participants' responses and complete member checking requirements, summarized responses were provided to study participants to verify transcription accuracy.

#### **Transferability**

Criterion sampling was used to select qualified participants, which achieves transferability during a study (Ravitch & Carl, 2020). By creating themes from the descriptive lived experiences of participants, the study demonstrates complexity and

external validity. Transferability occurred because data were collected in a specialized manner related to the lived experiences of the sampling population. Using a specialized sampling criteria population generates rich descriptive data, creating transferability (Ravitch & Carl, 2020).

Each study participant had over 5 years of experience implementing TIL programs. Their lived experiences are unique, making the sample population reflect transferability. During the study process, I kept a reflective journal to eliminate biases and ensure transferability among the rich data gathered. As stated in Chapter 3, data were explicated by bracketing units of meaning from statements, deriving seven essential themes documented from the lived experiences of study participants.

### **Dependability**

Study dependability was ensured by adhering to Walden University's ethical procedures guidelines throughout the study process. I worked closely with my committee chair members, receiving quality feedback and suggestions on proper data analysis practices. The five-step data analysis methodology was followed to provide a known sequence used for analyzing qualitative phenomenological data. This analysis approach was applied consistently with each participant. Interview settings were uniform for all participants. Member checking was conducted to verify that participant responses were transcribed and interpreted accurately.

### **Confirmability**

During the process, a reflective journal was kept for minimizing researcher bias. This reflexive process allowed me to stay grounded during the study, fulfilling my goal to

understand my role as a researcher. By remaining unbiased during the data collection process, I established confirmability in the findings using participants' lived experiences. Reflexivity was maintained throughout the study by dealing with emotions through reflective journaling and using reasonable logic to ensure confirmability.

A researcher aims to bring information to light during a phenomenological study, and I worked as a conduit during this process, allowing information to flow naturally. My assumptions were not imposed during the data collection and analysis processes. By using the bracketing methodology, I derived data from the lived experiences of participants, identifying seven themes important to technology integration, learning planning, budgeting, and implementation. By acknowledging the existence of biases and bracketing data into meaningful themes, biases were deterred. Confirmability was achieved during the data collection and analysis of the study results.

### **Study Results**

Study participants provided 11 transcriptions of data. I bracketed data based on statements derived from the transcripts after cleaning up the data and completing member checking. Themes were identified after categorizing the statements of relevance. Statements of relevance were completed through bracketing meaning from the data. These statements illuminated both broad and narrow information related to budgeting, planning, and other TIL management objectives.

Information was gathered from three types of school leaders: administrators, principals, and teachers. A total of 219 meaningful statements were explicated from the

data, categorized, and constructed into seven themes. Table 3 breaks down the number of meaningful statements tied to each theme.

**Table 3**

*Themes Categorized by Relation to Participants and Statements of Relevance*

	Participants related to theme ( $N = 11$ )	Statements related to theme ( $N = 219$ )
Long-term strategic planning	11	55
Budget prioritization	11	42
Leadership adaptability	10	33
Professional development technology training	9	31
Technology environments and equality	7	26
Budget resources and community partnerships	7	14
Collaborative sustainability	6	18

*Note.* Table 3 shows each statement of relevance categorized into one of the seven developed themes.

### **Theme 1: Long-Term Strategic Planning**

From their experiences, school leaders understand that TIL starts with planning. Data show that all 11 leaders expressed the importance of planning when it comes to implementing TIL. Planning can be understood as the lines of communication giving directives to stakeholders. This communication will establish the culture and expectations for implementing TIL.

Leaders described using long-term, multiyear planning, staggering the purchasing of technology over years, and planning accordingly to accommodate technological upgrades and student needs. School leaders emphasized that planning should align with budget resources and that technology spending should align with educational priorities. School leaders should prioritize resources towards school mission initiatives.

Public schools are mainly funded by state and local taxes, and data show that leaders are aware resources are limited. Their solution to this challenge is to maintain long-term strategic plans forecasted over 3 to 5 years. This allows for staggering purchases of technology and easier budgetary resource management. When expenses are anticipated more accurately, it increases the value of the funds received. Below are key statements connected to theme one by school leaders.

- I have learned that you must have a long-term plan. (Administrator)
- Our technology director has created a rotation that he updates each year to account for that year's incoming devices, any shift in current devices and the disposal of any devices. He uses that information to make sure that we are still on course with the schedule and adds planning for another year out. (Administrator)
- The better organized we are at the building level, in terms of inventory and need, the more likely we are to get the devices we need in our school. (Principal)
- Implementing a multiyear technology plan has been helpful for planning and funding technology, specifically creating a technology plan to stagger technology purchases. (Administrator)

- In my experience, I believe technology spending influences budget decisions in public schools at a rate of 9 out of 10. (Administrator)
- What I have experienced when it comes to leaders about technology planning is that most leaders want to see what is being done with the technology, especially with all the money that it costs. (Teacher)

Alignment of educational priorities with technology device spending is a common pattern found in theme 1 of the data. The information describes investments in technology devices, software, and infrastructure that should directly support desired student outcomes reflected in the district's mission. Financial resources should be allocated accordingly.

When specifically asked about the role of school leaders in funding technology spending, Principal L10 explained, "Our role is influential at best. We do not set the budget to purchase devices. This occurs at the district level. However, having an accurate inventory and an understanding of needs is necessary to lobby for needed devices." L10 refers to the central office as the district level, which includes administrators and leadership positions, including a technology director if one is employed by the district. This study included participants from three districts, two of which employed technology directors.

From L10's experience, there is a limited amount of influence a principal can have at the school level, as only a certain amount of funds can be allocated to each school at the district level. Budgeting for technology should align with technology expectations, as Teacher L2 discussed from her experiences. L2 explained, "I feel the more spent on

technology, the more budget planning will be noticed around the spending and what it was used for, so yes, I do think there is a correlation."

A practice that could increase technology use in future public-school classrooms is a technology committee that develops measurable statistics regarding the use of technology. L2, L8, and L9 each spoke positively about a technology committee or group that aided in technology decisions. By implementing a technology committee focused on student and educator technology needs, school district leadership could achieve more communication and group thinking.

Designating a planning committee to oversee technology integration management may attract more attention and potentially lead to new measurable metrics. A first step would be to determine metrics based on historical data to establish standards. The next step is setting goals to measure student achievement scores with TIL compared to historical standards.

## **Theme 2: Budget Prioritization**

The data relates to theme 2, showing that all 11 participants' experiences supported technology budgeting based on prioritizing school mission and program initiatives. An example scenario that encapsulates theme 2 is as follows: If school leaders prioritize specific professional development technology training for teachers, budget allocation should be identified early in the budget preparation management cycle, as this initiative is a set priority from leadership. Similarly, if a particular software is needed for students, establishing the budget early in the process sets the priority.

Prioritizing the budget will involve gathering stakeholders' input early in the budget planning process. While budget adjustments allow for shifts in spending priorities, these requests can be denied, based on my experience in public school budgeting. As the end of the year approaches, spending is more closely monitored by leadership to ensure that mission goals are being met. Key statements related to theme 2 are provided by school leaders.

- Understanding technology spending and technology needs significantly affects how much should be allocated. (Administrator)
- I have seen teachers and principals get us to focus on about two to four programs a year with our budget, and that seemed to work out well. It gave us direction as teachers to prioritize learning objectives. (Teacher)
- From my experiences, the budget we get has funds for technology spending, however, is not enough funding to cover all technology expenses throughout the school year. (Teacher)
- Curriculum, resources, assessment, and expectations are pushing more teachers to utilize technology more frequently. The classroom teacher's mindset, abilities with technology, and pedagogy skills impact the frequency and quality of student tech usage. (Principal)
- Technology is constantly changing. You can spend a large sum of money to get the newest and best 1:1 devices for your students and they will be outdated in a few years. We found that implementing a purchasing rotation gave us flexibility to integrate and plan for upgrades a little at a time. (Administrator)



Data supporting a foundational technology budget in relation to district funding should be an identifiable and measurable metric. Administrator L9 explains, “I think that technology implementation, upkeep, and operation will account for a large portion of your budget. On a \$26 million annual operating budget, salaries and benefits account for almost \$19 million of the budget. Total annual technology costs account for about \$1 million. While that is only about 3.8% of the operating budget, removing the cost of salary and benefits you only have \$7 million left. \$1 million out of \$7 million is about 14%.”

The data reflects budgeting as a barrier for technology use because (a) technology is expensive, and (b) budgets are finite. However, this barrier is minimal compared to other factors found within the data points. Budgeting resources is an issue; however, the data shows it is not the top barrier for technology learning. Data compiled and described in theme one indicates that planning is the primary barrier for implementing TIL successfully. Budgeting is a part of planning that encapsulates the entire picture of funding technology, including equipment, devices, infrastructure, logistics, training, software, and monitoring systems.

Principal L10 identifies barriers to technology when budget is lacking, including “inadequate devices, lack of computer program resources, lack of pedagogical knowledge, and outdated attitudes toward technology that prevent students from taking devices home.” Teacher L8 states, “a lack of training and time afforded to learn how to use devices causes barriers, as well as inadequate support for students with learning disabilities or Individualized Education Programs.” Many aspects can hinder students’

abilities without proper funding. Having the opportunity to use budget resources effectively can have a long-lasting impact on successful TIL programs.

### **Theme 3: Leadership Adaptability**

Technology learning is always changing, and emerging technologies are continuously being developed, requiring school leaders to adapt with the times. Theme three derives data showing the importance of school leaders' adaptability related to technology implementation. Data supports this theme from school leaders' experiences with initiatives aimed at creating positive change around budgeting and spending for technology.

By developing initiatives that promote technology use among teachers and students, data finds that school leaders are motivated to support and enhance technology use. Exploring new educational tools can enhance students' learning experiences. Below are participant statements aligned with theme three.

- A building administrator did put in a budget request for a technology integration for their whole building. This request was brought to her by a teacher from a professional development conference she attended. The budgeted dollars were approved and the program was implemented through the whole building. It was so well received and helpful that the other two buildings requested budgeted funds for their buildings as well and it has been implemented district wide.

(Administrator)

- Keeping software up to date and applications running smoothly is important, along with engaging students and allowing them to explore new technologies such as VR simulations and AI learning machines. (Teacher)
- Barriers regarding technology teaching I feel start at the teacher level. It has been a long shift from traditional learning to technological learning, and they are lacking training and experience to use technology. (Principal)
- Encourage teachers to learn new skills and have professional development days that provide knowledge that we can bring into the classroom. (Principal)
- See what is working best for educating students. Listen! What is best this year may not be best next year. Be open to change. Make a long-term plan and know that plan can and most likely will change. That is alright. It is welcomed if it is for the betterment of the educational process. (Administrator)

New technological devices are developing rapidly in the 21st century. AI is fundamentally altering how tasks are performed, and VR simulations are enhancing awareness skills through engaging real-life scenarios. Introducing these technologies into classroom learning has the potential to revolutionize modern educational techniques.

L6 emphasized a strategy to encourage TIL for both students and teachers, stating, "I believe that implementing a reward or recognition system for teachers and students who use technology could motivate school leaders to enhance TIL. For instance, offering monthly awards to tech-savvy teachers and students could boost their motivation to incorporate technology in teaching." School leaders must stay current and adapt to new

technologies that enhance students' learning experiences. Innovative ways leaders initiate change could optimize technology use.

#### **Theme 4: Professional Development Technology Training**

Training and improving educators' ability to teach students is fundamental to successfully managing a public school district. Training teachers for technology learning activities should be a distinct component within this framework.

Planning and budgeting, as explained by themes one and two, establishes a plan and prioritizes spending to support programs. Allocating funds for specific training sets a precedent by establishing requirements for educators. Establishing the necessity of technology training can foster a culture of technology use throughout the school hierarchy.

To effectively implement technology learning activities in classrooms, the data emphasizes the importance of environments in technology use, alongside access to technology devices, and educators' pedagogical abilities using technology. Teachers capable of implementing TIL require proper training and technological skill sets. Next is key statements of relevance connected to theme four.

- To improve TIL, teachers need proper training, and it takes spending budget dollars on professional development activities. (Administrator)
- Keep abreast of the industry including new technology initiatives and technology designed for students and classrooms; consult with technology experts about the best ways to implement technology in the classroom, (Administrator)

- Students are tech savvy, but they are not naturally savvy with computers and utilizing technology for more than just consumption. Teachers must model and teach how to use the technology devices appropriately. Especially when it comes to care of the devices. (Principal)
- I think technology training is not a huge influence on our budget each year. I would say it plays a bigger part than you would think because if you budget for it you will want to use it. (Teacher)
- Understanding key technological concepts is important for school leaders to promote using tech devices in a way that enhances learning. (Principal)

To properly train students in technology usage in classrooms, there must be buy-in from educators to possess a certain level of technological ability. Data suggests that school leaders need professional development focused on technology integration training to increase the success of TIL programs. According to L11, "To improve technology use in classrooms, teachers must be professionally trained and capable of interacting with technology easily." If planning has occurred and there is a budget available for technology, but teachers lack the capacity to educate students with technology, the program is likely to fail.

Principal L4 further explained, "Even with available technology, students need educators who can teach them how to use it, keep them engaged, and ensure they stay on track." The data collected supports theme four, which pertains to the training and development of teachers implementing TIL.

**Theme 5: Technology Environments and Equality**

If the public school system is set to implement technology learning and allocate funds towards that goal, as documented in the U.S. DOE Technology Plan (DOE, 2024), the first step must be getting technology devices into the environments and hands of students. The study identified environments and equitable access to technology resources, regardless of socioeconomic background or geographic location, as important based on participant data.

Each student deserves access to leaders capable of teaching with technological systems. Therefore, technology scheduling, device ordering, and logistical management are imperative for successfully implementing technology learning environments equitably. Below are statements of relevance pertaining to theme five.

- Some barriers for students regarding TIL are a limited number of devices available to supply each student with their own device. (Administrator)
- I feel technology environments have an impact on students' technology because to get students to use technology they need to be surrounded with opportunities. (Teacher)
- Technology is very important in my classroom. In my class, I have my students complete all their spelling work, AR testing for reading, and much of their science lessons on the computer. (Teacher)
- I think environments play a big role in the culture related to technology use. (Teacher)

- We expect kids to figure out technology because they have been exposed to it earlier in life, but really children need the patience and skill sets to learn technology, and in the proper environment settings, giving these skills time to grow. (Principal)

It is shown environments are going to influence the use of technologies, and the technologies available will be the devices of focus. Each student needs access to have the same opportunity as others in the public school system. Public schools are designed and created to offer equality for students and with technology there is no difference.

Creating technological environments must allow equitable access for all students. Participant L5 stated, “For best practices connecting students to technology learning devices, I feel a classroom environment sets the tone or expectation for technology use.” Technology spending should be spread equally to allow all students access to devices. School leaders should address disparities in technology access immediately, including lack of connectivity, infrastructure facilities, or limited devices. Additionally, students need access to educators qualified to teach using technology, as theme four determines. This factor affects both classroom environments and equality related to technology learning.

#### **Theme 6: Business Resources and Community Partnerships**

To implement TIL successfully, the data supports using alternative funding sources in addition to the state’s public-school budget. Alternative funding to seek includes technology grants, corporate sponsorships, community partnerships, and leveraging federal and state opportunities to support technology initiatives by reusing

donated devices or special programs. School leaders can work to partner with external stakeholders to enhance financial resources supporting TIL.

Creating multiple streams of technology funding is a proactive approach for school leadership for TIL planning and budgeting. Below are top statements of relevance categorized within the data supporting theme six.

- Stay abreast of industry changes and consult with technology experts about the best ways to implement technology in classrooms, while leveraging buying power for capital and ongoing technology purchases. (Administrator)
- Finding community partnerships that can donate technology devices for student use or provide grant funding for the purchase of technology equipment could help. (Principal)
- To properly fund technology, I've learned it takes more than one source to fund technology and all that comes with it. It takes new ideas from stakeholders, which could be developing relationships from community partners or others about funding technology. (Administrator)
- School leaders use fundraising and grant funding outside of the central office budgets to fund technology. (Principal)
- Finding a way to get outside support from community members on purchasing and maintaining technology might give a break to school budgets. I know some software programs offer cheaper subscription prices if it is for school students. (Teacher)



Creating new avenues that lead to an increase in technology devices is a way to increase TIL based on participant data. By engaging with community businesses or other governmental agencies who need to dispose of technology devices, opportunities for new technology devices are available. These devices becoming prevalent in school environments may have positive influences on students' engagement level. By school leaders creating partnerships with community stakeholders' students could see an influx of devices. Gathering devices from outside sources provides technological equipment to overcome budget capacity limitations.

#### **Theme 7: Collaborative Sustainability**

Continuing the advancement in TIL activities will involve collaborative efforts from school stakeholders. Study findings discover 6 of 11 participants expressed importance in school leadership working collaboratively, including administrators, principals, teachers, board members, and external stakeholders.

L8, an administrator, explains, "Yes, in some schools, school leaders engage their teaching staff during the budget planning season to ensure that adequate amounts of resources are allocated for appropriate TIL by grade level, subject, or teaching staff." L8 further details the importance of school leaders working collaboratively because "some barriers for students regarding TIL are limited devices available to supply each student with their own device; policies that prevent students from taking devices home, unsuitable infrastructure, and limited internet access at home." Collective efforts to prevent barriers and improve technology access are displayed in the data to identify with this theme.

L1, a teacher, said from her experiences, “Teachers are asked for inputs towards the purchase of technology to replace broken equipment, however requesting new technology is not something classroom teachers do because getting new technology things for classrooms is a challenge since the budget only goes so far.” A budget can only stretch so far which makes getting buy-in from all participating parties important. Here are some intuitive statements of relevance categorized into theme seven.

- Teachers typically do not have any control over the budgets. Sometimes teachers are allocated money to use to buy resources and supplies. (Principal)
- Listen to those around you and be open to change for progress. I know collaborating with other administrators around budget adjustments or rollouts as a collective unit can help teachers embrace changes, because we know teachers talk, and changes to funding is a big deal to them. (Administrator)
- During the budget season we also held teacher group meetings that allowed teachers’ to input how they wanted budget prepared. This allowed teachers to recommend purchases of certain types of technology. (Principal)
- I think just continuing engagement with stakeholders, principals, and teachers about technology spending and use is important, and to have conversations frequently throughout the school year. (Principal)
- It is important to get input from those using and teaching with the technology as they are the ones with the most hands on experience. It is important to hear what is working and what isn't. Don't invest in something just because it is supposedly the best money can buy. (Administrator)

Collaboration by association fits because school leaders are working in the best interest of the students and community at large. By collaborating as a unit with shared interest, strong leadership focused on TIL improvement will look for input from all stakeholders. Eventually, a standard operating procedures manual overviewing a TIL program that matches a school's objectives could be developed, with input gathered from all stakeholders. This collaborative effort creates group buy-in along with best practices and innovative ways to enhance technology experiences. Additionally, influencing the budget and spending patterns as a collective group creates a culture and presents awareness to school leaders. It is a group effort when it comes to the functionality of public-school systems, and community engagement can benefit technology learning initiatives.

### **Enviornments and Technology Spending**

A culmination of these seven themes, derived from phenomenological data, provides evidence from school leaders' lived experiences and key responsibilities when budgeting and planning for TIL in public schools. These themes address the research question posed. During interviews, two numerical responses were solicited to gauge the impact of environments and technology spending on TIL implementation, based on participants' lived experiences using a standard grade scale.

Table 4 calcuates data from two interview questions which required a numerical response in addition to their essence of lived experiences. The responses were scored on a scale of 1-10 for each participant. Paricipants scores are presented as an average of the collective group based on leadership level, to understand their lived experiences as a unit.

Calculations based on all 11 interviewee responses is provided including the average score, the standard deviation, and the range. The two interview questions along with the numerical data is presented below.

Question 1. From your experience, on a scale of 1-10, please explain how much technology classroom environments influence technology integration learning?

Question 2. From your experience, on a scale of 1-10, please explain how much technology spending influences budget decisions in public schools?

**Table 4**

*Scale of 1–10 Participant Scores at Leadership Level Including Average Score, Standard Deviation, and Range*

	Q1:Classroom environments influence TIL	Q2:Technology spending influences budget	Total respondents
Teachers	8.00	7.25	4
Principals	7.33	7.00	3
Administrators	8.50	8.00	4
Total averaged	7.94 (79.4%)	7.42 (74.2%)	11
Total standard deviation	1.128	.987	11
Total range	4	3	11

*Note.* Table 4 averages each leadership group's score. Calculations of average, standard deviation, and range are included based on all 11 participant responses.

Table 4 indicates that according to study participants, classroom environments exert a greater influence on TIL compared to technology spending, scoring 5.2% higher on average. This finding supports the notion that creating technology-rich classroom environments can positively impact the implementation of TIL over spending.

Classrooms equipped with technologies such as computers, tablets, smartboards, VR systems, and AI devices are prioritized over direct technology spending by 5.2%. Such environments are believed to enhance student achievement in technology learning skills.

Interestingly, while budgeting and spending are crucial to equipping classrooms with technology, school leaders often emphasize the role of environments over direct financial allocations in fostering effective TIL. Table 4 reveals administrators scored highest on both questions, indicating that leadership at the top acknowledge the significant influence environment and technology spending play on TIL. Conversely, teachers scored higher than principals on both measures.

This disparity suggests a potential communication gap between principals and teachers regarding the perceived importance of environments and technology spending in supporting technology integration processes. Principals, responsible for overall school management, may undervalue the critical role these elements play in TIL compared to teachers who directly engage in classroom instruction and technology use.

### **Summary**

Information derived from the lived experiences of participants was utilized to identify 219 statements of relevance. Each statement was categorized to develop seven themes that outline critical aspects for successfully managing and implementing TIL.

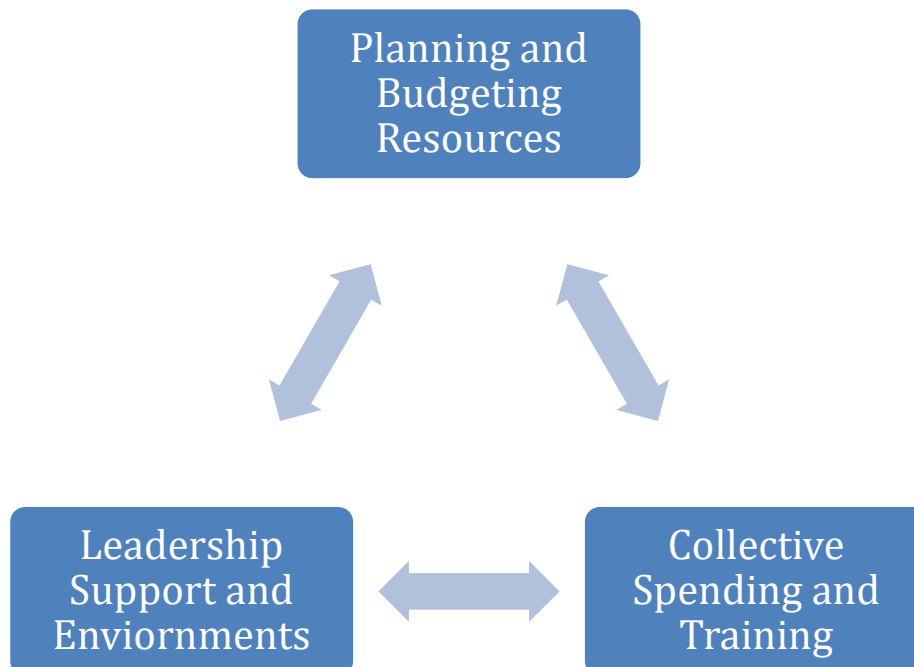
These themes were based on responses to the 10 interview questions presented in Appendix A, supplemented by follow-up questions for clarification during the interviews.

To summarize the seven themes, they were consolidated into three main focal areas. Each focal area serves as a foundational pillar for supporting TIL, operating both independently and collaboratively throughout the process for optimal effectiveness.

Figure 3 visually represents these three silos, illustrating the TIL connection cycle. The three areas of focus include planning and budgeting resources, leadership and environments, and collective expenditures and training. Figure 3 is provided below.

**Figure 3**

*TIL Connection Cycle Created by Encompassing the Seven Themes Identified Into Three Focal Points for Implementing Technology Integration Learning*



*Note:* The technology integration learning connection cycle encompasses all seven themes. Themes 1, 2 and 6 in Planning and Budgeting Resources, Themes 3 and 5 in Leadership Support and Environments, and Themes 4 and 7 in Collective Spending and Training.

Figure 3 creates triangulation involving all seven themes, encapsulated to form three main pillars of focus for supporting TIL in public schools. The TIL connection cycle works when each focal area functions both individually and collectively within the group to implement TIL programs successfully. Clear lines of communication should be established for quick reactions to information.

Looking at the seven identified themes in totality, it can be understood that many components are involved in implementing technology in public schools. A macro view of TIL based on the study findings provides a glimpse into the minds of experienced school leaders.

The results show the challenges, benefits, problems, and successes associated with the phenomenon. Each theme is detailed in the four chapter, relating to the data findings from the lived experiences of 11 school leader interviewees. Next, Chapter 5 discusses study limitations, future research recommendations, and potential positive social change implications.

## Chapter 5: Discussion, Conclusions, and Recommendations

The study findings were determined from the research question presented in the third chapter. A lack of TIL success in American Education Agencies (LEAs) is a problem in the 21st century. A gap in the literature was exposed around the planning and financial management aspects required to successfully implement TIL. The research question aimed to address this gap in literature.

RQ: What are the lived experiences of Missouri public school leaders regarding the financial management and planning to manage budget dollars towards implementing technology integration learning in their classrooms?

A qualitative phenomenological study was used to answer the research question. Based on data collected from 11 participant interviews, three focal areas were identified that need to be implemented on a continuous basis to positively influence TIL. In this chapter, I discuss the interpretation of study findings, any limitations experienced, future study recommendations, and impacts associated with positive social change.

The study findings identify seven themes derived from bracketing meaningful statements. Furthermore, these seven themes can be combined to create three areas of focus, termed the TIL connection cycle. Each focal area is a pillar of support, operating both independently and collaboratively to support successful TIL programs. The chapter concludes by presenting the TIL connection cycle and explaining the benefits for future school leaders to implement, which could potentially create positive social change. Successful TIL may change the way students experience classroom learning.



### **Interpretation of Findings**

The findings provide insight into the lived experiences of top-level school leaders in public schools who possess knowledge about technology integration processes. Chapter 2 addressed obstacles and barriers related to TIL in public school systems. In today's world, employers depend on technologically savvy employees due to instantaneous communication capabilities. This allows employers to provide workers with information quickly and efficiently. Despite federal government spending aimed at implementing technology across public education systems, the results have been lackluster based on the literature.

Data support the need for improvement in financial management practices surrounding TIL. The explication of data by bracketing statements of relevance into seven themes revealed that planning and budgeting, leadership and training characteristics, environments and collaboration among stakeholders, and business partnerships play vital roles in influencing TIL activities. These seven themes were identified based on participants' responses to ten interview questions.

Using the five-step process covered in Chapter 3 to explicate data, I bracketed 219 statements from 11 participant interview transcriptions. These statements were categorized, member-checked, and then organized into themes. The seven themes that developed from the study data included (a) long-term strategic planning, (b) budget prioritization, (c) leadership adaptability, (d) technology environments and equality, (e) business resources and partnerships, and (f) collaborative sustainability.

Results from the study can add knowledge to the literature by filling a gap related to the planning and financial management aspects involved in forming successful TIL programs. To maneuver a TIL program, school leadership will need plans, resources, educators, support services, and management. Importantly, there must be buy-in from management that permeates a culture of technology learning. This costs money, as many components are involved in the successful implementation of TIL. Curating a culture of technology starts at the top.

Sentiment within the interviewees' lived experiences spoke of public-school systems having limited resources. Leaders L2, L4, L6, and L9 all referenced limited resources and a need to "stretch money as far as possible." Financial management resources in public schools are limited to taxes received from local and state entities, in addition to some federal dollars and possible grants. School leadership has many factors to consider, and the seven themes identified in the data provide information for future school leaders. Next, I discuss the main components of each theme and construct a plan.

Leaders implementing TIL will start by developing a long-term strategic plan. Next, leaders will find enough resources to fund the plan. This will include prioritizing resources and budgeting for technology accordingly. Thirdly, leadership needs to be adaptable during the TIL process. Different situations will transpire throughout the plan, and school leaders must adapt and pivot when changes occur.

Additionally, school leaders need proper professional development training to prepare for teaching technology-driven learning activities. School leaders must find ways to create equality throughout school systems and work with community leaders to find

other forms of resources and gain community engagement. Lastly, school leaders need to collectively work together to create a sustainable environment for students' learning experiences. I further break down these seven themes into three main areas of focus, which are discussed in Chapter 4, Figure 3.

The TIL connection cycle shown in Figure 3 demonstrates a continuous cycle of key areas of focus when implementing TIL. Budget and resource planning, leadership support and equality, and collective spending and training used in continuity may produce a successful TIL program for public school leaders. The connection cycle is derived from the data collected to form the seven themes discussed in the four chapter. The seven themes are then drilled down and connected to expose three main functions influencing TIL. Data indicate that school leaders who are capable of planning and budgeting resources, are adaptable and create technology equality, and work collectively as a group for spending and training have an opportunity to successfully implement TIL in public school classrooms.

### **Limitations of the Study**

A limitation of this study is its single geographical location within a 50-mile radius. In Missouri, public school funding typically receives an average of 82% of the “general operating budget” (GOB) from state and local taxes (DESE, 2024). Funding laws for public schools may vary in other parts of the country, potentially impacting financial resources differently than in Missouri. Additionally, different geographical areas may have access to grant funding or business resources donated by larger

corporations. More affluent areas compared to impoverished areas may experience greater opportunities to receive adequate funding.

The criterion sampling used participants with 5 or more years of experience, which limited interviewing newer teachers who may have had exposure to technology learning activities. Recently graduated teachers without 5 years of experience may bring new ideas related to planning, budgeting, and implementing TIL. Other teachers with limited managerial experience were not able to provide input that could alter perspectives on lived experiences.

Lastly, the interview questions were formulated based on my knowledge and interest to gather perspectives from experienced leaders regarding planning and financial management in public schools. My interpretation of the data from interview responses was influenced by my own experiences in government finance of public schools. Another interviewer could interpret participant responses from a different perspective, potentially leading to different interpretations of the data.

### **Recommendations**

Based on the data collected from interviews, the study results, and my takeaways from the entire process, I developed two recommendations regarding future research on the phenomena of planning and budgeting for TIL. Future studies testing and examining this topic could be beneficial for future school leaders. In this section, I will explain my two recommendations.

The first recommendation is for a future study to research a measurable metric on how many hours per week learning with technology is ideal for student advancements in

technology use. This type of study could help future school leaders develop a technology learning plan based on metrics and results. Determining a proper window of time to advance students' technological learning abilities could benefit future educators and students. Being accountable to a metric could lead to consistency, which builds students' abilities and confidence.

The second recommendation is a study identifying the ages at which children are exposed to technology learning devices with an “eyes wide open” mentality. Today, an age is set for things such as chewing tobacco, drinking alcohol, and getting a driver's license. However, there is no certain age at which children are given technology devices or cell phones. Using the scientific method to capture a so-called “sweet spot” age for integrating technology could give teachers and parents a better understanding of a student's technological capacity. If the age group is sixth or seventh grade, a special technology initiative program could be planned during those formative years, increasing technology engagement and results.

Data derived from the study support weekly technology learning exposure.

Participant L4 stated,

I think it's important that you reassess technology use frequently, you know, not just every few weeks or a month, but especially every week, because there are different students who will get used to different programs and apps faster than others.

This quote suggests that steady use of technology on a weekly basis is beneficial to students' learning capabilities. Future research supporting this theory to influence positive social change on TIL success in public schools may produce valuable data.

## **Implications**

Understanding the processes involved in planning and budgeting for TIL can positively impact future school leaders. The study results may affect students, school leaders, families of students, and public-school organizations, and it may potentially influence societal beliefs. Providing school leaders with data-driven results from unique lived experiences may lead to positive social change around TIL adaptation in public schools.

Methodological implications could be altered with future studies that explore this phenomenon. Qualitative study participants involving focus groups could generate new ideas around TIL. The phenomenological approach served the purpose of gaining lived experiences from participants. A focus group data collection methodology allows for group thinking and new perspectives. Another method to further understand how TIL has been adapted in public school systems would be a grounded theory study. Developing new theories can add to the current understanding of TIL.

The study explored the lived experiences of school leaders, and the findings may have positive social change implications for future school leaders. Delving into the meaning and purpose behind the seven identified themes can lead to new management approaches related to TIL implementation. School leaders must be able to clearly communicate objectives, starting from administrators down to principals and teachers, who are tone setters capable of influencing TIL practices and creating a technology culture ecosystem.

Positive social change may occur by enhancing students' learning experiences based on study findings. Implementing TIL using the seven themes could challenge traditional learning methods and lead to adaptive technological advancements in learning, creating positive social change within public school classroom environments.

### **Conclusions**

Chapter 1 contained information about the research problem and the study's purpose. My research question was presented, in addition to a conceptual framework visualizing the research gap being explored. In describing the nature of the study, I explained why a phenomenological design was used and provided a rationale describing the importance of planning and financial management in technology integration. Information about school leadership and public financial management was provided. The study scope, limitations, and assumptions were discussed, along with the significance of theory and positive social change elements.

In the second chapter, I included the literature review, the research strategy, and keywords used to gather sources of information. In the literature review, sourced researchers described barriers and successes regarding TIL. The conceptual framework was detailed to connect leadership planning and budgeting with TIL. A summary provided information relevant to leadership planning and budgeting for TIL from scholarly articles.

Chapter 3 outlined the methodology and research design selected. A qualitative phenomenological design was used to answer the research question from participants' lived experiences. The participant selection process was outlined, and the data analysis

plan was provided. Table 1 showed the five-step process used to explicate data and bracket units of meaning. Study trustworthiness and ethical procedures finished the chapter.

In the fourth chapter, I presented the study results. The research setting was described along with participant demographics. Table 3 categorized the 219 statements of meaning into each theme. The seven themes were described in detail based on the interviewees' lived experiences. Table 4 showed average scores of school leaders comparing tech environments versus tech spending based on two interview questions.

Chapter 5 was the final discussion, in which I interpreted the study findings and limitations. Recommendations for future research were provided, and implications for positive social change were delineated. Each theme was summarized, and the main areas of focus were identified.

The study results in Table 4 outlined how school leaders at all three levels score environments and technology spending influencing TIL from their lived experiences. It showed that school leaders rate environments over technology spending as greater factors influencing TIL success. Results showed that school leaders understand resources are limited; however, per the data, this is not a main reason for unsuccessful TIL programs in public school districts.

The study results determined that planning and budgeting resources influence TIL, along with leadership and environment equality, and collaborative spending and training. School leaders must continue to work and research ways to efficiently and effectively manage TIL. L9 said, "technology is always changing." School leaders



staying engaged and creating a culture of technology learning may lead to positive social change enhancing students' learning experiences.

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### Appendix A: Participant Interview Questions

1. What have you experienced when it comes to budgeting for technology integration learning?
2. What have you experienced when it comes from public school leaders regarding the planning of technology integration learning initiatives?
3. What experiences have you found to be barriers for students regarding technology integration learning?
4. What experiences have you found to be successful for students regarding technology integration learning?
5. What role have you seen school leadership play in funding technology integration learning?
6. From your experience, on a scale of 1-10, explain how much affect does a technology classroom environment influence technology integration learning?
7. From your experience, on a scale of 1-10, explain how much affect does a technology spending budget influence technology integration learning?
8. During budget planning season, from your experiences, were teachers giving the authority to spend finance dollars on technology integration learning?
9. Based on your experiences, how can school leaders improve the implementation process for technology integration learning?
10. From your experiences, how can future school leaders better serve the planning and funding processes of technology integration learning in the 21<sup>st</sup> century?

Note: Remind participant information is kept confidential.

## Appendix B: Participant Invitation

Greetings,

You are receiving this because your name was gathered as a qualified candidate for an upcoming research study. The study is about financial management and leadership planning regarding technology integration learning (TIL) in public school systems that could help teachers and education leaders better understand the planning around TIL programs. For this study, you are invited to describe your experiences managing technology integration learning (TIL) in public school classrooms. This is a criterion sample requiring participants to have 5 years or more experience managing technology integration learning (TIL) in public school classrooms. Would you like to participate in this study? Please respond via email to receive next steps. Thank you.

## Appendix C: Follow-Up and Member Checking Email

Greetings,

Thank you for your time participating in my research study. By sharing your experiences, you provided valuable information regarding the study topic. Your participation may influence positive social change for technology integration learning implementation in the future.

To complete the data analysis process, I want to validate your interview transcripts. Please review your transcriptions which are attached and confirm via email if these transcripts accurately reflect your experiences regarding the planning, budgeting, and implementation processes for technology integration learning in public schools. If you would like to make updates or changes to the current transcripts, please adjust accordingly.

Once you have reviewed, made any necessary changes, and approved of the transcripts, please confirm. Thanks for being a participant and sharing your story regarding this study topic.

All the best,

Joshua Armstrong



## Appendix D: Study Form

### **Study Participant Invitation Form**

There is a new study about financial management and leadership planning regarding technology integration learning (TIL) in public school systems that could help teachers and education leaders better understand the planning around TIL programs. For this study, you are invited to describe your experiences managing technology integration learning (TIL) in public school classrooms.

#### **About the study:**

- One 45 – 60 minute phone interview that will be audio recorded (no videorecording)
- You would receive a \$20 Visa gift card as a thank you
- To protect your privacy, the published study will not share any names or details that identify you

#### **Volunteers must meet these requirements:**

- School Leaders including administrators, principals, or teachers with 5 years' experience managing technology integration learning in public school classrooms
- Implemented TIL programs in public schools

This interview is part of the doctoral study for Joshua Armstrong, a doctoral student at Walden University. Interviews will take place in December. Thank you.

Please reach out at XXXX-XXXX-XXXX or call XXX-XXX-XXXX to let the researcher know of your interest. You are welcome to forward it to others who might be interested.

## Appendix E: Participant Demographic Identifiers

**Demographics**

Name: \_\_\_\_\_

Gender: M / F

Age group: 22 – 30 \_\_\_\_\_

31 – 39 \_\_\_\_\_

40 – 50 \_\_\_\_\_

51 – 60 \_\_\_\_\_

61 + \_\_\_\_\_

Leadership Position:

\_\_\_\_ Teacher

\_\_\_\_ Principal

\_\_\_\_ Administrator

Years of Experience:

\_\_\_\_ years