ICPEL
Education Leadership Review
of
Doctoral Research

Fall 2023
Volume 11
ISSN 2832-4250

International Council

of Professors of Educational Leadership

International Council

ICPEL

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Education Leadership Review of Doctoral Research
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Contents

From the Editors

This issue of *Education Leadership Review of Doctoral Research* (ELRDR) is published in recognition of the extensive work that recent doctoral graduates, chairs, and/or committee members complete to augment the field of education leadership and administration. The ongoing quest to focus on research-based findings to create a bridge between theory and practice in K-12 education and school leadership remains essential, especially as educators continue to grapple with supporting students and staff amidst a recovery from the pandemic. We are excited to support the work of recent doctoral graduates, and it is promising to see that their endeavors continue to show that effective educational leadership transcends all contexts. We encourage you to further promote our aims to your colleagues and recent graduate students so that we may continue to support new authors and contribute to recent, innovative, and meaningful work to the field. Additionally, we remain deeply grateful to our authors, editorial advisors, and peer reviewers for continuing such scholarly work to our practice and the field.

In this issue, the work by Michael Figueiredo in, "Competency-based Education and the Millennial Learner: A Perfect Pairing?," reminds us of generational differences that might exist as we engage new leaders and consider the efficacy of competency-based education. The study helps to define and examine features of competency-based models, wile exploring characteristics and preferences specific to millennial learners. In doing so, findings elucidate methods of student engagement to consider in classroom application in an effort to better identify ideal strategies for increased learning.

In an effort to continue to identify best practices, Barbara L. McCarthy and David B. Reid explore urban teacher perspectives regarding one-to-one devices. They specifically aimed to gain an understanding of past and present perceptions, noting that teachers generally reported positive experiences. Through this work, teachers express a call for embedding one-to-one classroom technology but indicate a need for time to learn, use, and practice with the integration of the devices.

Outside of classroom best practices, Ingrid L. Colvard and Mary Zaharis, look to enhance the superintendency through gender diversification. Their phenomenological study explored how women in such roles experienced mentorship and role preparation for the position. Their work supported the opportunity to amplify women's voices, while highlighting key themes, the glass ceiling, family influence, career pathways, mentoring and sponsorship, representation, volition, and personality characteristics. Such findings may help us learn more about ways to reduce inequalities amidst the challenges perpetuated among our educational systems.

The articles in this issue remind us of the everchanging landscape across K-12 and higher education settings. As we see in this issue, a continued focus on best practices illuminate innovative strategies, support positive outcomes for students, and alleviate stressors on essential considerations to the field of Educational Leadership. As always, please encourage your colleagues and their recent doctoral graduates to take the next step beyond the dissertation by

pursuing authorship of their work. Your support allows us to engage in and disseminate relevant and meaningful work in Educational Leadership.

Sincerely,
Jafeth E. Sanchez, PhD
Editor, *The Education Leadership Review of Doctoral Research*

Jennifer K. Clayton, PhD
Assistant Editor, *The Education Leadership Review of Doctoral Research*

Competency-based Education and the Millennial Learner: A Perfect Pairing?

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Competency-based education (CBE) has become common practice for postsecondary education institutions that facilitate medical training in Canada and the U. S (Campbell, 2020). In terms of theoretical framework, pedagogical delivery and effectiveness, the CBE approach has evolved over time, and so have students. During the rise of CBE approximately 7-10 years ago, it was common for higher education programs to largely consist of students of the millennial generation. It will be analyzed and determined whether CBE can in fact account for establishing a distinct relationship between its methodology and students. This literature-based study out of the University of Toronto defines and examines features of competency-based models while exploring characteristics and preferences in accordance with millennial learners in the medical setting. To do so, CBE teaching and learning theories will elucidate specific methods of student engagement. The findings will be assessed in consideration with classroom application, to determine whether the efficacy of CBE is the ideal strategy for millennial learners is supported or nuanced.

Keywords: competency-based education, millennial learners, post-secondary education

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Over the last decade, higher education institutions governed by the Royal College of Physicians and Surgeons of Canada that administer medical training, at both undergraduate and postgraduate levels, implemented an alternate approach to traditional time-based learning, impacting the way teachers teach and learners learn. This strategy can be referred to as competency-based education (CBE). The methodology is far from new, in theory dating back to the 1980's, and even further if we are considering synonymous concepts. Some authors have stated that this approach has a 100-year developmental history beginning with the workplace efficiency movement (Taylor, 1911) and then moving to the educational sector by the 1940's (Tyler, 1949). Common understandings of key elements in competency-based systems have adopted different terms, such as —competency-based, mastery-based, proficiency-based, and performance-based education (Levine & Patrick, 2019, p. 4). An early definition of CBE, as described by Swanchak and Campbell is "the precise specification of competencies or behaviours to be learned, the modularization of instruction, evaluation and feedback, personalization, and field experience" (1981, p. 5). This definition of CBE has evolved to become an instructional delivery method with evaluation criteria weighted heavily on outcomes rather than process. It is a practical milestone-based system that ensures on-the-job skills are met. Though CBE has been used to varying degrees in professional, trade, and military training for decades, the medical discipline has recently espoused CBE at an international level (Curry & Docherty, 2017). Notably, the integration of competency-based models in higher education is not a result of practitioner negligence or ineptitude, but rather to ensure a baseline of competence across all specialties and uniformity in the development of crucial skills (Royal College of Physicians and Surgeons in Canada, 2020). Competency-based education is now common practice for medical programs within university networks, backed by professional associations in the U.S. and Canada, such as the Accreditation Council for Graduate Medical Education (ACGME) and the Royal College of Physicians and Surgeons of Canada. As a result, today's medical trainees are subjected to evaluation of not only their academic knowledge and clinical skills, but also their competencies, as they progress through a sub-curriculum scattered with milestones and entrustable professional activities (EPA's).

This paper explores a range of literature explaining theories of CBE functionality and the relationship with student development theories specific to the millennial learner. The scope of literature presented will then be analyzed in consideration with research theories discussing expectations and learning trends associated with millennials. To explain the relationship between CBE and millennials in this study, it is imperative to examine the features of recent competency-based models, explore theories in accord with students of the millennial generation, and then bring forward any relevant conceptualizations and draw connections to practical classroom application. Due to its prevalence, a substantial volume of the research presented is associated with, however not limited to, medical education. Based on my findings, conclusions will be drawn to assess the efficacy of competency-based higher education as the ideal teaching strategy to engage and accommodate the learning preferences of millennial students.

Competency-based Education: Function and Theory

Before addressing theories characterizing students of the millennial generation, it is important to explain how competency-based systems operate from a functionalist perspective. Wai-Ching

Leung (2002) provides an expanded definition, referring to the use of CBE in medical education:

> The basic elements consist of functional analysis of specific occupational roles, translation of these roles (competencies) into outcomes, and assessment of trainee progress on the basis of demonstrated performance. Progress is defined by the competencies achieved and not the underlying process or time served in a formal educational setting. Assessments are based on a set of clearly defined outcomes, so that all parties concerned can make reasonable judgements about whether or not each trainee has achieved them. Potential benefits of this approach include individual flexible training and transparent standards. (p. 693)

For the purposes of this study, emphasis is placed on the following terms mentioned in the above definition; competencies, progress, outcomes, flexible training, and transparent standards. These terms will be dispersed throughout this paper in attempt to establish a connection between the CBE teaching methodology and students' receptivity. In reviewing much of the forthcoming literature gathering commonalities found in the research, I am inclined to identify a linkage between the competency-based teaching model and predict whether student engagement can be discerned as substantial, nuanced, or under supported. Depending on the level of theoretical harmony, conclusions will be drawn to gage the efficacy of CBE as the ideal teaching tool and learning preference for the millennial student today. On this note, as many authors agree, especially in terms of millennial students, engagement is paramount to academic success (Carter, T.L, 2009; Hart et al., 2011; Roberts et al., 2012; Therrell et al., 2015).

It is important to acknowledge CBE as a malleable process and highly dependent on occupational roles specific to each discipline. For example, within the competency-based framework an otolaryngology resident would be required to perform a tonsillectomy, or a family medicine trainee would administer a vaccine at some point in their respective training programs. Both clinical on-the-job functions represent milestones or competencies, which are interchangeable terms. When competencies are flagged by the trainee as executed, their performance is evaluated by a faculty member in a teaching role, and if satisfiable proficiency is determined, the milestone is considered complete and documented as an entrustable professional activity (EPA). For example, the faculty instructor would sign-off that resident *x* has successfully performed a tonsillectomy or resident *y* has proven the ability to administer a vaccine. The evaluation process is then documented electronically using a web-based system or smartphone application to link each trainee's progression through the competency curriculum with their performance in the traditional chronologically based curriculum.

There is a formalized process in place to monitor each trainee's progress throughout a competency curriculum. In addition to program committees evaluating academic and clinical training, which typically consist of a director and faculty instructors, the CBE model also dictates the formation of a competency sub-committee. The latter committee's purpose includes measuring competency success rates and assessing the placement and suitability of said competencies. The competency sub-committee would typically contain some of the same and/or different members of the traditional committee, or a rotational membership. Parenthetically, it must be noted that competency-based learning models do not overwrite traditional curricula models. Instead, the competency curriculum acts as a sub-curriculum (a curriculum within a curriculum) and supplements the time-based progression model by designing obstacle-like milestones or competencies, in the form of layers positioned along the course of training.

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Milestones, therefore, can be realigned or repositioned in other segments of the training program, governed by the competency committee. In addition, rather than attributing competencies as static progress indicators that when achieved are declared competent with no terminal date, instead it must be emphasized that the concept of competency training is an ever-changing, contextual construct (Koens et al., 2005). As previously stated, the outcome-based competency paradigm focuses more significantly on end results than process. This strategy supports the recognition of varied learning styles among students and deters subjective judgements associated with process differentiation.

In terms of actual classroom application, CBE commonly associates the use of technology to facilitate a "learner-centredness of training" (Frank et al., 2010, p. 641). Methods such as the flipped classroom may be prevalent in a competency-based learning stream. Learning management systems such as Slack, Blackboard, and Canvas are quite common platforms for teacher-student communication. he proliferation of medical simulation technology also supports the CBE model. For example, surgical training programs in Canada have piloted the OtoSim, a device that attaches to a smartphone to simulate otoscopy (a clinical procedure to examine structures of the ear)…not only does this provide a standardized curriculum for trainees nationally, it also collects performance analytics that can be shared with program directors to assess learners' competence (Hall et al., 2020). In the medical setting the use of technology can also prove to be quite valuable in the absence of real patients in actual clinical experiences. Performing an otoscopy simulation using the OtoSim is an example of a milestone to overcome within a competency curriculum. Especially during the COVID-19 pandemic with training programs disrupted, institutions recognize the tension between the need for flexibility and the responsibility to maintain training standards (Hall et al., 2020).

Moving onward from the functional definition to a more theoretical perspective, the CBE strategy guides the path of mastering competencies throughout the course of training, with an onus on the student's individual performance. As students progress through milestones, they can accomplish objectives in a non-linear fashion and flexible learning style. Theories state that a larger share of students will ultimately reach proficiency in each content area if they are given the freedom to advance at their own pace and if their learning experiences are tailored to their needs and interests (Lewis et al., 2014; Sturgis & Patrick, 2010, as cited in Ryan & Cox, 2017). Some authors echo this theory, arguing that CBE encourages students to take responsibility for their progress by mapping out their own transparent pathway from milestone to milestone on their way towards achieving competence (Frank et al., 2010). In doing so, more time can be spent mastering critical skills and less time learning about concepts textured by shades of didactic pedagogical strategies. Therefore, the CBE method pairs individual accountability and ownership aligned with transparent standards set by a rubric and guided by the competency curriculum. It can be argued that that this strategy promotes engagement through the exclusive process of demonstrating mastery among clearly defined occupational roles, directly preparing students for workplace-specific skills and abilities. Within a CBE model, instructors can teach specifically what they need to teach, and students can learn specifically what they need to learn. The next section will expand on research suggesting how our subjects, millennial students, prefer to learn.

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Millennial Students: Traits and Trends

The Millennial Generation (born ~1982-2002) is now well represented in the university setting and shaped by a variety of influences (Carter, 2009, p. 25). Also known as generation *y*, net generation, and generation 'me', several scholars agree upon shared characteristics, which in turn help provide working definitions for this study. The millennial generation, according to the work referenced in this paper, exhibit diverse traits and behaviours apart from ancestral generational groupings. Monaco, in defining the millennial student, compiled a table consisting of characteristics and how they relate to pedagogy (2007). Several of these suggestions for classroom application include "clear instructions and expectations of assignments, daily lesson learning outcomes, clear paths to success, the inclusion of technology for teaching, linking content to 'real life' situations, and the encouragement of group dynamics" (Monaco, 2007, p. 44). In comparison, researchers have generalized the preceding generation *x* (born ~1965-1980) as displaying the following traits: "gen *x*'ers are thought to be cynical and pessimistic, they are private, culturally independent and skeptical, they are likely to want hard facts, expertly delivered, and value variety and speed" (Borges et al., 2006, p. 572). Based on these juxtaposed characteristics, generation *x*'ers can be described as more compliant with instructional delivery and less likely to question teaching methods, inclined to work independently rather than in groups, and willing to challenge academic sources; while our modern counterparts, millennials can be described as confident and resourceful, skeptical of dull or non-engaging instruction, gravitational towards group work, and outcome oriented.

To provide a disclaimer, researchers should avoid generalizing students, however being mindful of generational characteristics allow educators to develop a culture that is appealing and relevant to current learners (Hopkins et al., 2018). As such, this paper will acknowledge the trends gathered from the following peer-reviewed critiques. On the surface, Howe and Strauss identify seven core traits of millennials germane to the delivery of higher education; they are "special, sheltered, confident, team oriented, conventional, pressured and achieving" (Howe & Strauss, 2003, as cited in Yahr et al., 2013, p. 2). Authors such as Hopkins characterize that what is important to millennials may be different from what is important to individuals who belong to other generational groups (2018, p. 188). Millennials have been parented distinctly and have been consistently deemed to be "special" and "winners," irrespective of their behaviors, effort, or actions (Hopkins et al., 2018, p. 188). Social media is also a very regular part of a millennial's daily routine (Hopkins et al., 2018). "In terms of learning preferences, group activities, workshops, and game-style presentations of knowledge are preferable" (Hopkins et al., 2018, p. 189). Millennial students appear to demonstrate less tolerance for lecture-style teaching, and this is one reason that instructors need to find new ways to engage the students with the learning content (Koponen, 2019). This research goes on to indicate that millennials are accustomed to fast information and answers, so empiric evidence suggests that they may tend to have shorter attention spans (Hopkins et al., 2018). Further in terms of learning preferences, Therrell and Dunneback (2015) provide the following observations:

> Millennial students today are widely subject to boredom and a litany of distractions meant to keep boredom at bay: online video, video games, TV, texting, tweeting, Skyping, and music available 24/7. Focusing young adults on challenging course work presents teachers with a major challenge: to keep students mentally engaged and emotionally

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involved once they are in the classroom or online. When students elaborate, they indicate that teachers who exhibit positive energy are motivational, that body language or facial expressions indicating passion starts to capture their attention and tends to increase their responsiveness (p. 61).

Early connections can be made regarding the relationship between millennial students' apparent need for engagement and the nature of CBE framework. Considering the research presented thus far, I accept that the self-directed proficiency model exhibited by competency-based training would appeal to modern learners. Due to the construct of mapping necessary competencies within a curriculum, the student can prepare for the fixed pillars ingrained within the training program, represented by milestones. The transparent standards and pre-meditated action plan inspire specific focus, increasing the caliber of engagement, as students confront milestone after milestone. Relatively, in terms of motivating millennial students, Crone and MacKay assert "that students increasingly seek structure, direction, and praise in a way previous generations did not…it seems they want things to be fixed or done so they can move on to the next project" (2007, p. 19). Pertaining to medical education, residents can become absorbed in mastering defined competencies, which in turn can activate a healthy form of student engagement. "The fundamental characteristics of milestone-based assessments can be perfectly paired with millennial motivations and expectations of their learning experiences in several dimensions" (Desy, et al. 2017, p. 245). It is the self-directed and flexible learning style embedded within a competency-based model, that in turn can captivate students and keep them engaged throughout the pursuit of turning competencies into EPA's.

CBE for the Millennial Generation: A Fixation on Necessity

Following the analysis of CBE from pragmatic and theoretical standpoints and unpacking characteristics of the millennial student generation, this paper will proceed with determining relevant connections. However, the relationship between the millennial student and competency-based education will be further investigated to draw firm or nuanced conclusions. I would infer that there is a level of synergy between the CBE strategy and student. Research in accordance with my inference depicting this connection is as follows. First, Stasio declares that 20th century classrooms were "time-based" and the 21st century classroom is "outcome-based" (2013, p. 57). This movement defines a critical trait of CBE framework as responsible for altering the classroom dynamic, implying a shift from process-centredness to learner-centredness (Frank et al., 2010). A practical reason for this shift may be of organic methodology, a transition that caters to the learning preferences of millennial students. Secondly, CBE is distinctly different from traditional education in many ways; it moves the focus of assessment away from knowledge acquisition towards knowledge application, incorporates more formative assessment, and emphasizes the direct observation of students' skills with feedback on how these skills compare to a predetermined standard (Weinberger et al., 2010, as cited in Desy et al., 2017). With increased frequency of feedback, natural learning curves may be shortened and lines of communication between teacher and student enhanced. Based on these observations, some authors have agreed that competency-based education is an ideal fit for the millennial generation as it realigns education and assessment with the needs of these 21st-century learners (Desy et al., 2017).

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Much of the literature reviewed in this study portray millennials as extremely resourceful, confident, collective minded, and diverse (Crone, et al., 2007; Desy, et al., 2017; Frank, et al., 2010; Hopkins, et al., 2018; Howe, et al., 2003; Stasio, 2013; Therrell, et al., 2015). Based on the assumption that millennial learners are often tech-savvy, self-directed, highly adoptive of new skills and on-demand feedback and demonstrate preference towards learning flexibility and engaging activities while detaching from didactic instruction - I propose that millennial students tend to be fixated on the necessities and unconcerned with academic content that proves to associate no applicability to their learning objectives. Many millennial students seem to have a "consumerism" attitude towards education (McGlynn, 2008, p. 20). They see themselves as customers in a business transaction, seeking direct benefit and application from education as the product. This can be interpreted as students potentially feeling their priority is to only take what they need from each unit and overlook peripheral details. Today's learners are clever enough to seek out the "real world" value of each assignment in class and determine how they will use the skills obtained in one class in the rest of their courses and which will benefit them most in the professional world (Cardon, 2014). According to the trends and characteristics gathered by the authors in a holistic fashion, millennial students' behaviours and learning preferences complies with my proposition.

Today's students have a fixation on the necessities, which can be further explained by merging millennial expectations with competency-based principles (Desy et al., 2017). Practical application to connect milestone-based ideologies with millennial educational needs are as follows. In addressing specific goals and objectives, each milestone describes the required skill in a transparent, specific manner (Desy et al., 2017). To address the need for continuous and frequent feedback; CBE framework supports formative feedback through multiple methods, including examinations, flipped classroom modalities, simulation technology, and various types of evaluation from different sources (Desy et al., 2017). Most significantly, to accommodate the need for personalized and self-directed teaching methods; CBE provides a rich developmental framework for institutional and self-directed educational interventions and on-demand guidance (Desy et al., 2017). All in all, the CBE model caters to millennial students' appreciation for mandating quantifiable focus on the necessary skills, abilities, and outcomes without the distraction of micro-process supervision.

Conclusion

In conclusion, the research presented in this study identifies and defines the competency-based education method and extrapolates trends and characteristics of the millennial learner. As student development and behaviours evolve over time, it is prudent to also expect an evolution of pedagogical approaches. Hence, as much of the tendered literature reveals, there is a substantial relationship between the CBE model and its resonance with the millennial generation.

This study is important within the realm of higher education academia because it paves the way for an expanded discussion regarding educational reform. Despite most of the examples brought forward in this paper sourced from medical journals and considering medical education practices, the CBE method inherently provides a critical assessment of its validity as an alternate pedagogical strategy, and contrasts and challenges research surrounding student development theories (in millennials). Respective of the findings, this study makes a case for increased research

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activity advocating the CBE movement as part of a macro educational reform, inclusive of all disciplines.

Looking back to the Leung definition of CBE; competencies, progress, outcomes, flexible training, and transparent standards are all themes that underpin and highly correlate with the research brought forward (2002). These components of student development can acclimate to various capacities, with the end goal of engaging the millennial learner in the higher education setting. The opinions collected and conveyed in this paper exemplify CBE as a potentially valuable teaching and learning strategy. Although several of the views regarding millennial student behavior are educated opinions and prone to some level of generalization, it cannot be understated that the shared characteristics lead to an overarching theoretical semblance of the generational group reduced to a singular composition of traits. In particular, the Desy, et al. article (2017) reinforces this thesis by concluding that 'millennials' desire for explicit instruction, personalized learning, and directly observed assessment from their mentors is well met by the educational expectations and objectives of the CBE framework" (Desy, et al., 2017, p. 246). "With its attention to transparency, personalized learning, and frequent formative assessment, the CBE milestone-framework is well aligned with the learning preferences of the millennial generation" (Desy et al., 2017, p. 249). Based on the findings, I would ascertain there is an efficacy for competency-based training as a higher education teaching strategy, potentially proving to be instrumental in engaging and accommodating the learning preferences of today's millennial students.

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The Use of One-to-One Devices in an Urban School District

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This study analyzed data from a survey distributed to teachers in an urban school district in New Jersey. The survey asked teachers about their past and current perceptions of, and practices with, the use of classroom technology and in particular one-to-one devices. Findings reveal teachers generally perceive technology as positive in teaching and learning, but also noted some limitations. The biggest takeaway from this study is that teachers believe they can improve both their technology skills and their methods of technology integration into instruction, provided they are given the necessary time to learn, use, and practice with technology and one-to-one devices.

Keywords: classroom technology, one-to-one devices, teacher beliefs

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The concept of each child having a laptop or tablet for their own use at school is commonly referred to as a one-to-one device program – one device for one student. Ideally, students have full use of a device for the entire school year (Education Reform, 2013). However, many urban minority school districts have not been able to enact such a program due to lack of funding. Prior to the COVID-19 pandemic shutdown of schools, two-thirds of classes in the district under study, from here on referred to as *NJ Urban,* did not have a one-to-one device program. However, when schools shut down in March 2020, districts which did not yet have a one-to-one device program rushed to supply their students with one-to-one devices so they could learn from home, with demand increasing so much that there were shortages in supply (Rauf, 2020). For example, the state of New Jersey received over $310,000,000 through the Federal Government's CARES Act for pandemic-related relief, which included $200,000,000 in Elementary and Secondary School Emergency Relief Funds (ESSR). Of this, over $33 million went to the school district under study, NJ Urban, some of which was used for purchasing one-to-one devices so that students had access to online classes and could communicate with their teachers from home (NJ.com, 2020).

As there has never been a situation before where all teaching was forced to be done remotely, this study did not follow a specific theoretical framework, but was instead a grounded-theory effort to gather information on the use of technology by teachers following a period of enforced remote teaching.

Purpose

The purpose of this study was to gather the perceptions of teachers who taught remotely during the 2020-21 shutdown of schools, and who returned to teaching in-person classes, to see if and how their classroom instructional practices regarding the use of technology and one-to-one devices changed after a year of teaching remotely. With schooling back to pre-pandemic operations, this study was designed to explore what, if anything, changed in the way teachers utilize technology and, in particular one-to-one devices, in their instructional practice. This study surveyed all teachers in the NJ Urban school district to gather their perceptions of the use of classroom technology, in particular one-to-one devices. Of the 754 teachers surveyed, 394 (52.24%) responded by completing the survey.

The research questions that guided this work were: (1) What are teachers' perceptions of the use of technology in the classroom?; (2) In what ways have classroom teachers changed their instructional practices after a year of remote teaching?; and (3) In what ways are classroom teachers now leveraging a one-to-one device program for their instruction?

Review of Literature

This review of literature has been subdivided into five sections to aid in understanding: Technology in schools; Teachers' perceptions of technology in the classroom; Sustaining effects of technology use; Students and one-to-one devices; and a final section on current gaps in the literature.

Technology in Schools

Technology and personal computers have progressed in leaps and bounds in recent years, and according to the American Community Survey, 92% of households in the United States had a smartphone or laptop in 2018, and 85% had Internet access (Martin, 2021). Schools have expanded their technology programs, increased their Internet bandwidth and many have provided their students with a one-to-one device; an iPad, laptop, or Chromebook-that they may use in class and take home with them after school. Despite this progress, there are many studies which show that technology is not being fully integrated into teachers' lesson plans, and that in fact, much of the available technology sits idle in the classroom for most of the day (Herold & Smith, 2015; Li, 2007). Much has been made of this, and both school districts

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and technology corporations have pushed to find out why there is this seeming reluctance by teachers to use available technology, and what can be done to increase the likelihood of teachers integrating technology into their daily lessons (Cuban et al., 2001; Hsu, 2016; Li, 2007). Larry Cuban, one of the first to focus research on classroom technology, referred to the integration of technology in education as a "slow revolution" and posited that leaving teachers out of the decisions as to what type of technology to buy/use in schools was partly to blame for them being underused in classrooms (Cuban, 2001). He, and others (Ames, 2019; Herold & Smith, 2015; Reich, 2021), suggested that baby steps in adding technology to classrooms will be more successful in the long run than the rapid overhaul proposed by politicians and corporate interests, and that if teachers were allowed to choose the technology that fit their needs, instead of having it imposed on them, they would be more likely to use it more often (Vu et al., 2019). However, as Herold suggests, with the numerous demands on teachers' time already, integrating more technology may be up against some resistance as "totally changing the way you do your job takes a ton of time and work" (Herold, 2015, p. 7). These views combined are likely close to the truth: if the teachers do not get to choose the technology they want, and do not think it will improve their lessons, they are unlikely to want to put in the needed time to integrate it into their classes (Li, 2007; Ottenbreit-Leftwich et al., 2010).

Teachers' Perceptions of Technology in the Classroom

Prior to the COVID-19 pandemic shutdown of schools, teachers had little to no experience of teaching remotely (Trust & Whalen, 2021). Switching to remote learning meant that teachers had to modify their lesson plans and find sources that were available online to help their students, rather than using the classroom or school libraries to which they would normally have turned (Green et al., 2020). It also meant that teachers had to find a support network other than their usual group of colleagues or personal learning network (PLN) they would turn to when schools were in-person. Many of them turned to social media support/learning groups, or to using YouTube videos, to learn how to use and/or integrate technology into their lessons (Trust & Whalen, 2021).

Prior research findings have shown that some teachers are not comfortable themselves with the advances in technology, and so are reluctant to use it in class, in case something goes wrong, and they are unable to fix it (Cuban et al., 2001; Li, 2007; Taimur et al., 2021). Many, particularly older teachers, still adhere to the sage-on-the-stage approach to teaching, and do not wish to risk being embarrassed, or feeling incompetent, if they are unable to figure out any mishaps with the technology (Blau et al., 2014; Hsu, 2016; Lieberman, 2020). Younger teachers who have grown up with technology are reportedly more likely to use it in class, but even among them, it is frequently just used for skills and drills, typing up projects or papers, or for watching videos (Ertmer & Ottenbreit-Leftwich, 2010; Schleicher, 2020).

To keep up with the new developments, teachers need to spend time learning and practicing with new applications. In fact, studies have shown that in order for teachers to be fully comfortable with using a new application, they need to spend 40 hours or more using it themselves, before being able to effectively integrate it into their classes (Hammond, 2017). Finding time to practice a new application is very difficult for teachers, with all the other demands on their time, but time to practice is vital in order for teachers to be able to skillfully integrate new technology into their lessons (Kopcha, 2012).

Sustaining Effects of Technology Use

According to Ertmer (1999), there are two types of barriers to increasing technology use among teachers. The first is external to teachers and refers to the availability of appropriate equipment and training for teachers to know how to use the technology. This is what Ertmer refers to as "first order barriers." The second barrier is internal and refers to factors such as internal beliefs, attitudes, confidence, and skills. This she refers to as "second order barriers." The pivot to remote learning essentially removed many of

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the first order barriers. The question now is: did the time of using exclusively technology to teach help to remove the second order barriers, and if so, will this effect be sustainable over the long term?

Although it is too early to tell if any changes will continue to influence teachers over the long term, there have been previous studies which showed that an intense period of concentrated learning in reading and/or English language skills can result in sustained gains even after the intense learning period has ended (Anderson, & Stonehill, 1982; Escamilla et al., 1998). These gains continued to be steady even two or three years afterwards. A recent study in Ireland by Winter et al (2021), which looked at technology use among teachers during the pandemic, came to the conclusion that the time teachers have spent using technology exclusively has increased their confidence levels, and may perhaps reduce some of the second order barriers referred to by Ertmer (1999), but that it is really too early to tell if these effects will persist over the long term (Winter et al., 2021).

The vast majority of research on remote or distant learning has been done with adult populations, and these have limited relevance to the pandemic situation as "children have fundamentally different learning needs to adults" (Starkey et al., 2021, p. 43). Some articles have come out recently (after the shutdown), that report on the difficulties of the pivot to remote learning and on the problems teachers and students had coping with the switch. While many assumed that students would adapt well to remote learning, as they spend so much time on their devices, teachers actually found that students struggled. As an article in the Wall Street Journal noted, being a *digital consumer* is a lot different from being a *digital learner*, and the switch is not always intuitive (Hobbs & Hawkins, 2020).

Many teachers also struggled with deciding how best to integrate technology into their lessons, in order to engage their students as much as possible. Although teachers had professional development to show them how to use various technologies, they were unsure of the best or most appropriate ways to integrate them into their lessons (Hutchison & Reinking, 2011; Thoma et al., 2017).

Students and One-to-One Devices

Prior research has indicated that students' engagement, as well as their reading and math skills improve when schools have a one-to-one program (Genota, 2018; Islam & Grönlund, 2016; Zheng et al., 2016). However, there have also been studies that indicate reluctance on the part of teachers to utilize said one-to-one programs to their greatest potential (Cuban et al., 2001; Ertmer, 1999; Luo & Murray, 2018). Teachers, administration, and technology corporations all have suggestions for how to use one-to-one devices in schools. The general purpose of one-to-one devices is "to enhance learning in general as well as more specifically contribute to development of 'twenty-first century skills' such as creativity, critical thinking and communication skills" (Islam & Ke Grönlund, 2016, p. 192). Research has shown that with one-to-one devices, teachers are able to more easily provide individualized help to students using computers, which is particularly effective with reading skills, as teachers are able to scaffold learning according to students' needs, and to provide students access to online dictionaries, or text-to-speech programs which they can use to expand their background knowledge (Zheng et al., 2016).

The use of one-to-one devices has been found to improve students' academic scores, particularly in math, and mainly due to the ability to personalize learning, with programs such as Freckle, IXL, and GoMath, which track students' progress and match future assignments to their current level (Genota, 2018). A meta-analysis in 2016 found that students' performance improved in writing and science, in addition to mathematics, for schools with a one-to-one device program. However, there was no statistically significant improvement in reading (Zheng et al., 2016), and in fact, there is some evidence that free reading by students decreases when they are given a one-to-one device (Hull & Duch, 2019).

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Gaps in the Literature

Given the financial investment in New Jersey supplying students with one-to-one devices, it is important to know how these devices are now being used, so that school districts can decide if they want to continue with a one-to-one program or if they want to phase it out. There are costs involved in running one-to-one programs, as all devices must be properly maintained and updated, and replaced if broken or damaged. In addition, support staff are needed to provide training and support to both teachers and students, and to ensure devices and security systems are running properly (Machusky & Herbert-Berger, 2022). Technology is advancing at such a rate that these devices will likely need to be replaced within 5 years at most, so continuing a one-to-one program is a large investment for a school district. The data gathered in this study may help the school district in question to decide on the future of its one-to-one program.

Method

Context and Sample

The school district for this study, NJ Urban, has twenty schools and a population that is almost 100% minority students. The district is in a high-poverty area, with a poverty rate (prior to the COVID-19 pandemic) of 19.1%, meaning that one out of every 5.2 people in the district lives in poverty. This is substantially higher than the overall poverty rate in New Jersey of 10.7%. The use of one-to-one devices in schools dates back to the 1990s, and although many districts had one-to-one programs prior to the COVID-19 pandemic, the district under study, NJ Urban, did not have such a program in place.

Prior to the pandemic, most teachers in the district had an Apple PC for their use in the classroom. Many of the classrooms also had a promethean or smart board. On average, there were 3-6 laptop devices in each classroom for student use. The district primarily used the Google suite of applications for education, although they did have some other district-provided applications for use as needed from Pre-K 3 through 12th grade, principally for reading, math, and science. The majority of schools had at least one laptop cart – larger schools had one on each floor – which could be checked out by teachers on an as-needed basis. They did not have one device for each student, so students had to share devices with one or two other students.

As such, this district appeared to be an ideal one to study, to see how teachers perceived the intense period of technology use during the 2020 shutdown of schools, and how the newly acquired one-to-one devices may have changed the way they instruct their classes since the return to in-person learning.

The population for this survey research was classroom teachers in the NJ Urban school district. The sample was limited to the 754 teachers currently employed (in May 2022), and who began teaching in the district prior to March 2020, so that they had experience teaching prior to, during, and after the COVID-19 pandemic shutdown of schools. Table 1 shows a breakdown of the demographics of those who participated in the study.

Table 1
Participant Demographics:

Gender	Female	Male	Prefer not to say			
	74% (153)	22% (45)	4% (9)			
Race	Asian	Black/AA	Pac. Island	White	Other	Prefer not to say
	0.5%	51%	0.5%	30%	7%	11%

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	(1)	(104)	(1)	(61)	(15)	(23)	
Hispanic	Yes	No	Prefer not to say				
	11%	79%	10%				
	(23)	(162)	(21)				
Age	18-24	25-34	35-44	45-54	55-64	65+	Prefer not to say
	0.48%	12.98%	31.25%	29.81%	17.31%	1.92%	6.25%
	(1)	(27)	(65)	(62)	(36)	(4)	(13)
Education	Associate Degree	Bachelor's Degree	Master's Degree	Doctoral Degree	Prefer not to say		
	1%	17%	72%	6%	4%		
	(3)	(35)	(149)	(12)	(8)		
Length of time in district	0-2 years	2-5 years	6-10 years	11-15 years	16+ years		
	6%	16.74%	14.42%	15.35%	47.44%		
	(13)	(36)	(31)	(33)	(102)		

Note: not all participants answered demographic questions

Survey

The survey was an original instrument, informed in part by the LoTI Digital Age Survey for Teachers, distributed by the International Society for Technology in Education (ISTE). Using descriptive statistics and open-ended survey questions and interviews, information was requested on the perceptions of classroom teachers regarding the use of technology, particularly one-to-one devices, in their instructional lessons. Specifically, the purpose of this study was to gather the perceptions of teachers who taught remotely during the 2020-21 shutdown of schools, and who returned to teaching in-person classes, to see if and how their classroom instructional practices regarding the use of technology and one-to-one devices changed after a year of teaching remotely. Prior to distribution, the survey was reviewed by a committee of experts in the field, and then piloted in a similar urban school district, adjacent to the one under study. Twelve teachers completed the survey during the pilot study and were additionally asked to comment on its format and whether they thought anything needed to be added or changed. Following this, some of the questions were modified slightly to improve clarity. The survey questions asked teachers a variety of questions to gather information on how exactly they used technology in the classroom (Appendix A). This survey was administered in May and June of 2022.

Note: Although there are many mentions of the COVID-19 pandemic and the subsequent shutdown of schools in the teachers' responses, COVID-19 itself was not a subject of this study. It was purely a matter of convenience, as the shutdown of 2020-21 led to the rapid deployment of one-to-one devices in the district, and also to a time of teachers using only technology for instruction**.**

Analysis

Data from the survey responses were exported from Qualtrics to Excel. Qualitative data were uploaded to ATLASti. The original data were saved, and a copy was used for cleaning the data and subsequent

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analysis, so that the original data would be available for reference at a later date if necessary. All responses were de-identified and randomly issued with a Case number, which was then used to identify all quotations. Excel was used to analyze the quantitative data and to create graphs to portray that data. The qualitative data were uploaded to ATLASti and coded using inductive coding, to group common responses and to identify trends among the open-ended comments.

Establishing Credibility

To check for reliability and validity, the proposed survey was reviewed by my dissertation committee. Following their input, and after some suggested alterations were made, the survey was piloted in a second similar urban school district, adjacent to the one under study. Respondents were asked to provide comments on the pilot survey once they had completed it. These comments and suggestions were considered, and some modifications were made prior to the final survey being administered.

Following administration of the survey, teachers from two of the twenty NJ Urban schools who had responded to the survey were contacted and asked for their opinion of the survey, and if they thought it had covered everything relevant to the use of school technology in NJ Urban school district. All those who responded indicated that they thought the survey covered everything, and that it was clear and easy to follow. One teacher commented that the survey took a little longer than the estimated 30 minutes for him to complete; the others indicated that they completed the survey in 30 minutes or less.

Limitations

Potential obstacles for online surveys include response rate, which is traditionally rather low for survey research (Fan & Yan, 2010; Wu et al., 2022). To combat this, reminders were sent to all members of the sample whose responses were incomplete at one, two, and three weeks after the initial mailing.

Asking teachers to recall their classroom technology activities prior to the Covid-19 shutdown of schools may result in inaccurate remembering.

Despite assurances that all data collected will be confidential, there is always the risk that respondents will answer with what they think they should be doing, rather than that which they are actually doing.

This study looked at one urban minority school district in New Jersey, and as such, may not be generalizable to other school districts with dissimilar populations.

Findings

The purpose of this study was to gather the perceptions of teachers who taught remotely during the 2020-21 shutdown of schools, and who returned to teaching in-person classes, to see if and how their classroom instructional practices regarding the use of technology and one-to-one devices changed after a year of teaching remotely. Three research questions guided this research: (1) What are teachers' perceptions of the use of technology in the classroom?; (2) In what ways have classroom teachers changed their instructional practices after a year of remote teaching?; and (3) In what ways are classroom teachers now leveraging a one-to-one device program for their instruction?

Teachers' perceptions of the use of technology in the classroom

Returning to in-person teaching following the period of remote instruction during the shutdown, teachers in the NJ Urban school district are overwhelmingly more comfortable using technology now (Figure 1). Of the 214 teachers who responded to the question on comfort level with technology, just five said they felt

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less comfortable now, 64 said that they felt about the same level of comfort, and 145 said that they felt more comfortable using technology now than they had prior to the pandemic shutdown. Teachers' perceptions of classroom technology were overwhelmingly favorable.

Analysis of the qualitative data revealed two main themes in response to the first research question: (1) teachers' perceived technology positively impacted student learning, but there were limits to what technology could do; and (2) teachers believed they needed increased training and support to best use technology – and specifically one-to-one devices – in the classroom.

First, teachers like the way technology can be tailored to meet individual student's needs, and that they can easily monitor how each student is doing. For example, Case 187 said, "I can track what they are doing better, via google docs for example". The teachers perceive that using technology in the classroom enables them to tailor their lessons to individual student's abilities and gives them the means to easily track and monitor their students' progress.

While some teachers indicated they now use technology as their primary means of instruction, the majority use it for practicing math and reading skills, with two-thirds of them using one-to-one devices every day. Teachers perceive that using more technology in class actually saves them time, as lessons can be stored online and easily modified for use in the future, and many of the applications they use can automatically grade students' work which means the teachers don't have to use their own time to grade work.

Figure 1
Teachers' comfort level with technology following return to in-person learning.
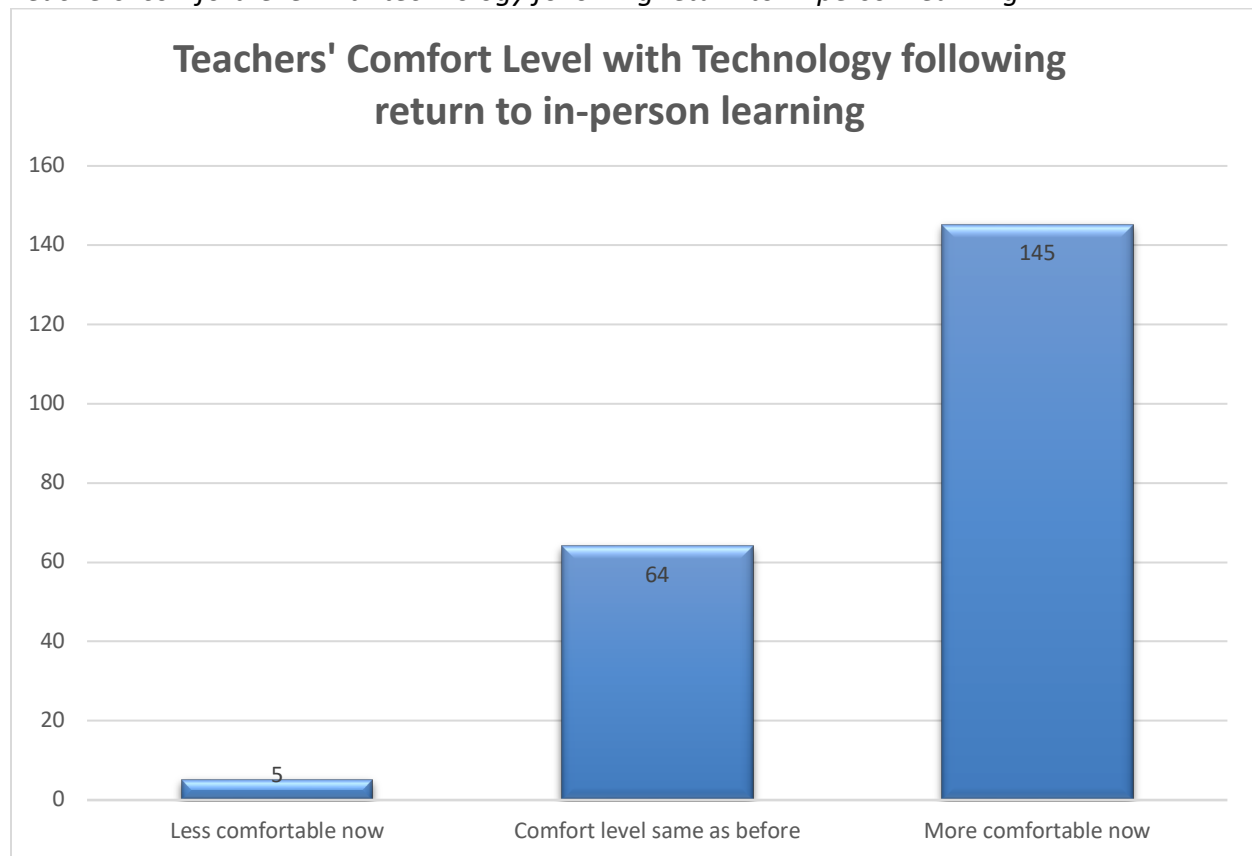
Teachers also perceive that one-to-one devices are a convenient way to help those students who may be struggling in the areas of math and reading to upgrade their skills by practicing the concepts that

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they find challenging.

One way teachers perceive technology keeps students engaged is by reaching students at their current level, modifying options depending on the students' performance, and helping to reinforce prior learning. According to Case 46,

> Technology makes it easier for all my students to access the same content and allows for me to present concepts in multiple representation. It allows students to be staggered in their learning, which helps push the advanced students, while assisting those that have more needs.

Despite these positive perceptions, teachers were also wary of relying too much on technology during instruction. For example, Case 17 commented,

> We have to be careful that we aren't just sitting them at a desk with a device and just letting the "platform" do the teaching without any guidance from the teacher. There still needs to be interaction between student and teacher.

Good pedagogy is still a necessity and students still need direction and encouragement as they use their one-to-one devices. It is not enough to just assign a topic and tell the students to find the answers for themselves. Case 15 worried that that was already happening at her school:

> Some teachers are using technology as a crutch. They are just assigning activities on the computers and not really teaching the skill before assigning. They're letting the programs teach the kids. This is a great loss for those particular students.

While the overwhelming perception of technology seemed to be positive, a number of teachers felt that there was now too much reliance on technology and consequently students' competencies in basic skills, such as handwriting and math, were being negatively affected. Furthermore, teachers recognized that students with devices need to be monitored carefully, as there is always the temptation to switch to another tab to something more entertaining, or to try to multitask by working with multiple tabs at the same time. Case 8 commented, "One-to-one device use is only helpful if the students are using the equipment appropriately and staying on sites the teacher assigns. So, classroom management is a big part of the one-to-one classroom device use". This sentiment was reiterated by Case 63 who wrote, "one-to one technology allows for increased student engagement within classrooms as well as more easily differentiated instruction, however it also opens the door to more distractions [games, videos, cameras, etc.]." In a similar vein, Case 187 also thought that the students needed closer monitoring: "students' independence with technology has kind of made them go more on games than on academic/learning programs." Case 44 thought that the usefulness of one-to-one devices depended on the students using them: "Students need to be internally motivated. Otherwise, laptops are a distraction on par with cell phones."

Changes to Teachers' Pedagogy

Examining responses with regard to the second research question, three themes became evident. First, teachers' experiences working remotely have helped them to develop a confidence and fluency with technology that they did not have before. Case 116 noted "I feel I'm way more fluent in my technology use as it was my sole means of communicating with students in 2020." In another example, Case 76 said, "I am familiar with more online programs...I feel more confident in my online instruction strategies." This increase in confidence and fluency with technology means that the teachers are now more willing to change their instructional methods by adding more technology into their lesson plans. Case 139 commented,

> Because of the pandemic I had to teach differently, and I wanted to feel confident just like in the classroom to maximize student learning. In addition to planning my lesson plans, I learned how to create google slides and put links and teaching materials in them

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prior to lessons to keep the students engaged without interruption... I also found (bought)
slides that I could use via share screen to have the students interact with the lesson.

Prior to the pandemic the majority of teachers said they used technology sparingly in their instructional lessons, but now the majority of teachers say they use it daily. When asked why their instructional methods had changed, most teachers mentioned that it was due to the time when they were forced to use technology during the shutdown. Teachers are now more fluent in technology and therefore more confident and savvy using technology in the classroom. As Case 104 put it, "I know more computer programs. I can navigate various internet platforms that I wasn't familiar with prior to September 2021." Similarly, Case 152 said, "I have more knowledge and have become a certified google educator. I use many different platforms and resources because I have had more training of technology-based curriculum."

The second theme that emerged was that teachers are taking advantage of technology to differentiate their lessons, so that they can reach all of their students. They are now familiar with more applications and programs and have realized they can be used to enhance their lessons and help engage students who may otherwise be unengaged. Case 80 summed up her experiences, writing:

I upload instructional support videos and resources to help them when they are behind
or stuck. This helps me differentiate teaching and students are more independent
learners. I observe the learning needs and create instructional videos to support students.
That way they are not sitting and waiting for help while I am assisting another student or
teaching a small group.

Teachers have also realized that they can use technology as a means for students to help themselves: "Students can use tech for extra help using a variety of math/reading applications students can simply use by themselves" (Case 4). This in turn helps teachers as they try to group their students according to ability.

Using more technology "helps teachers collect data to help drive their small group instruction and interventions to close those learning gaps" (Case 165). Case 116 added that technology:

...allows teachers to differentiate instruction, especially for students who are struggling
2-3 grade levels below because you can assign online activities on their grade level in
which they can practice on a daily basis in small group. When the teacher doesn't have
time to meet with them in small group or one-to-one, the student will be able to continue
to play videos of content and practice content related skills.

In sum, teachers are more comfortable with and more inclined to use technology in their lessons post-COVID, since they have had the time, during the period of remote learning, to familiarize themselves with different applications and programs, and to take advantage of online professional development. This has contributed to increased comfort with using technology during their classroom instruction and that has led them to change their instructional practices by including more technology in their lessons: "I have found more creative ways to engage all learners at their individual levels" (Case 102). As one teacher put it, she now has "a bigger toolbox of ideas" (Case 150).

Being familiar with how the programs work has given teachers more confidence in using them in the classroom. Teachers also mentioned they would use technology even more if they had more time to practice, and if increased supports were available (Figure 2). Having students who are more familiar with the technology means that there are less delays and/or disruptions to the class when the teacher assigns something on the computer, so teachers are willing to include more technology in their lessons now than they did prior to the shutdown: "Students have become more tech savvy and it is more convenient to go paperless." (Case 132).

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Figure 2
Factors that would increase teachers' use of classroom technology.
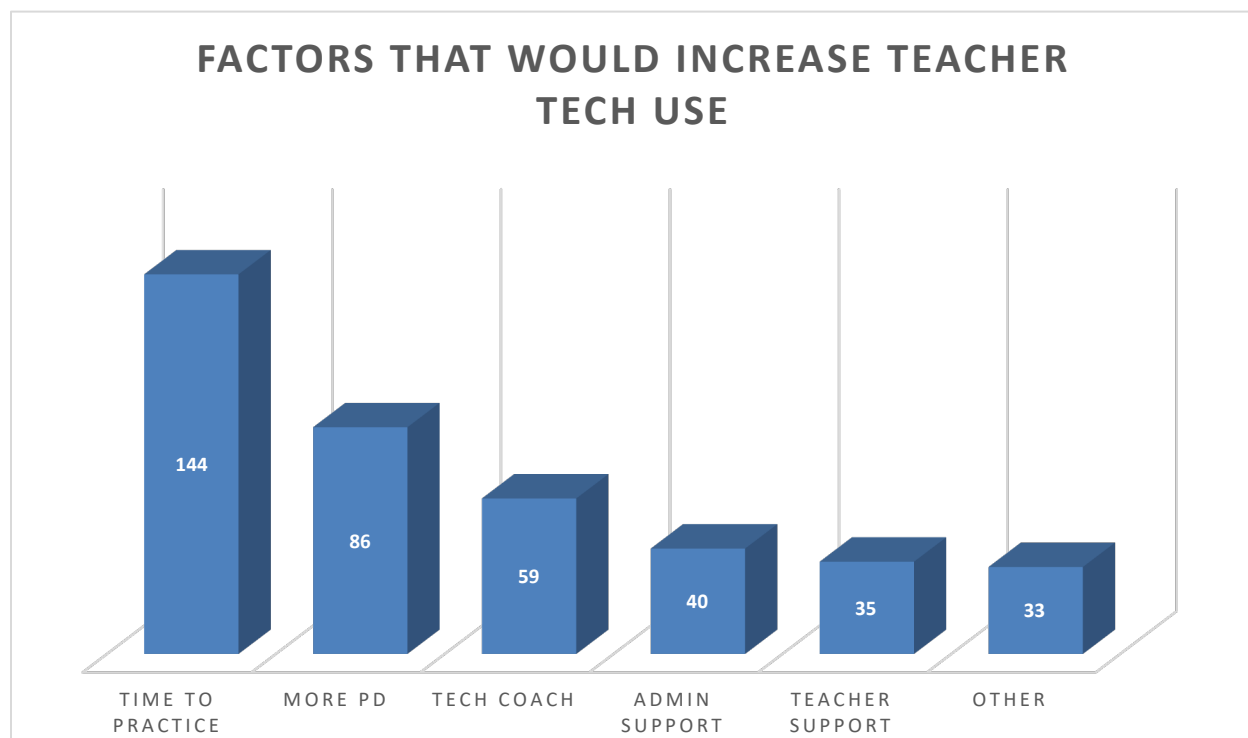
## How Teachers Leverage One-to-One Devices in their Instruction

Addressing the third research question, the first theme that emerged was that when each student has their own device, it is easier to incorporate more technology into lessons and to use it more frequently. Since the pandemic shutdown, the vast majority of students have access to their own device. In fact, just 6% of teachers out of the 213 who responded to that question said their students did not have one-to-one devices (Figure 3). As Case 47 wrote, regarding classroom technology, "I used it daily [pre-pandemic], but now the students are using it daily as well." Case 104 added, "I used to use technology as a supplemental source prior to COVID. Now, I sometimes use it as a primary source for instruction" (Case 104).

The majority of teachers in this study said they would use one-to-one devices daily now that they are available. It also helps that lessons are available online for the whole marking period and "in case any students are absent, they can retrieve the material from their devices and complete the required activities" (Case 29). With every student having their own device it makes it easier for teachers to incorporate more technology into their lessons: Lessons are now "more tech driven, knowing students have their own device" (Case 2), and "now that school is one-to-one it is much easier to do online activities" (Case 4). It also helps that "students are more familiar with using chrome books now so it is easier to get them on quickly. Since students do not have to share devices, you can target many of them at one time instead of just one-on-one" (Case 13). Many teachers voiced the same sentiment as Case 128, who said,

> I believe allowing a student to have their own device will prevent them from getting distracted by sharing, and will allow them to work at their own pace without having to worry about being too fast or slow for their partner.

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Figure 3
Number of students with 1:1 devices pre- and post-Covid-19 shutdown.
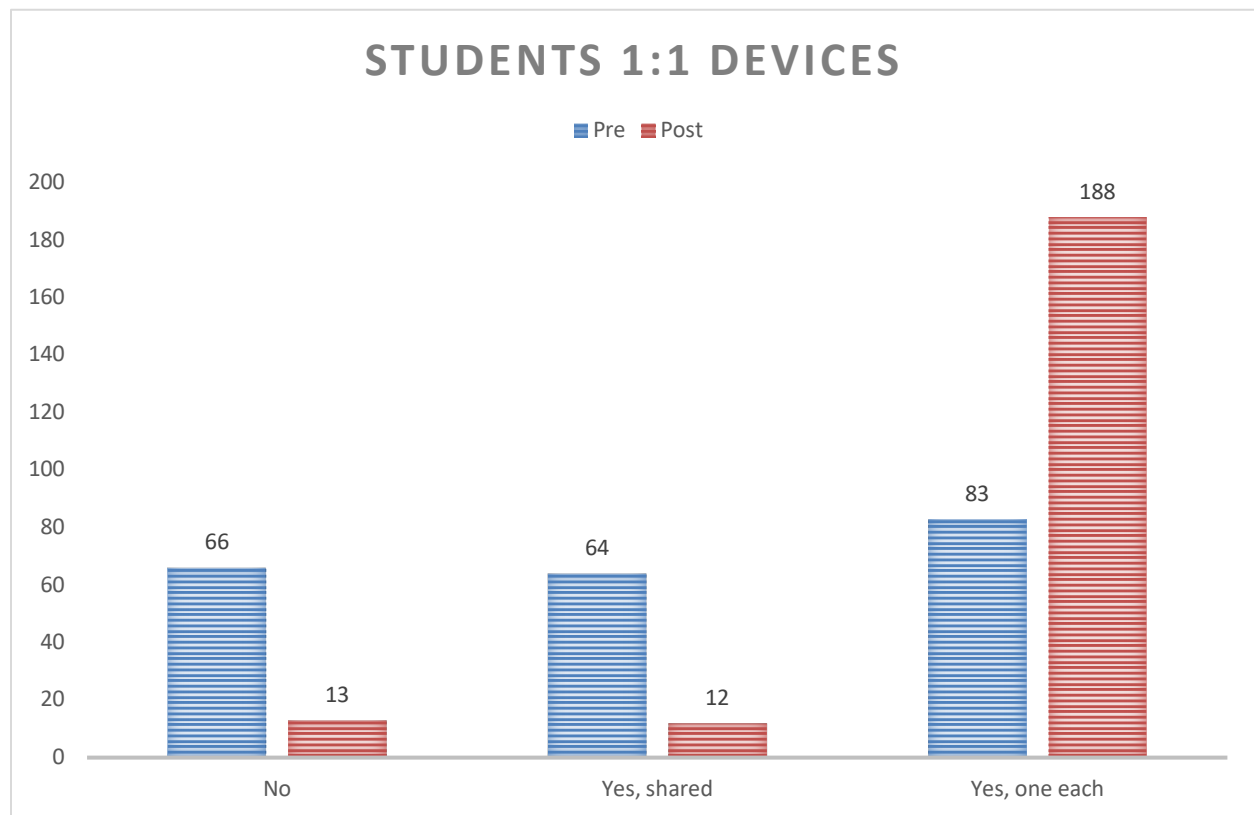

The second theme that emerged was that teachers are using one-to-one devices to individualize/differentiate lessons and to help catch up students on anything they may have missed. As Case 80 noted, now that students all have a device "I upload instructional support videos and resources to help them when they are behind or stuck. This helps me differentiate teaching and students are more independent learners." Case 165 commented that "it helps teachers collect data to help drive their small group instruction and interventions to close those learning gaps."

As each student now has a device, teachers have also been using them to help build up the skills that may not have been learned and/or practiced while students were learning remotely. "Students are in need of remediation of skills missed during the pandemic, therefore daily fact practice on the computer is an easy and fast way for daily practice" (Case 116). With the devices available, students do not have to wait for the teacher to help them, but can move ahead to the next lesson the teacher has prescribed: "Students can use tech for extra help using a variety of math/reading applications students can simply use by themselves" (Case 4). Case 27 noted that "mathematics is a subject that requires a great deal of practice and using online resources can be a great way to help bridge the gap." Responses to questions on frequency of device use showed that the vast majority of teachers have students use their devices for math and reading practice daily (Figure 4).

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Figure 4
Device use frequency for Math and Reading practice since returning to in-person learning
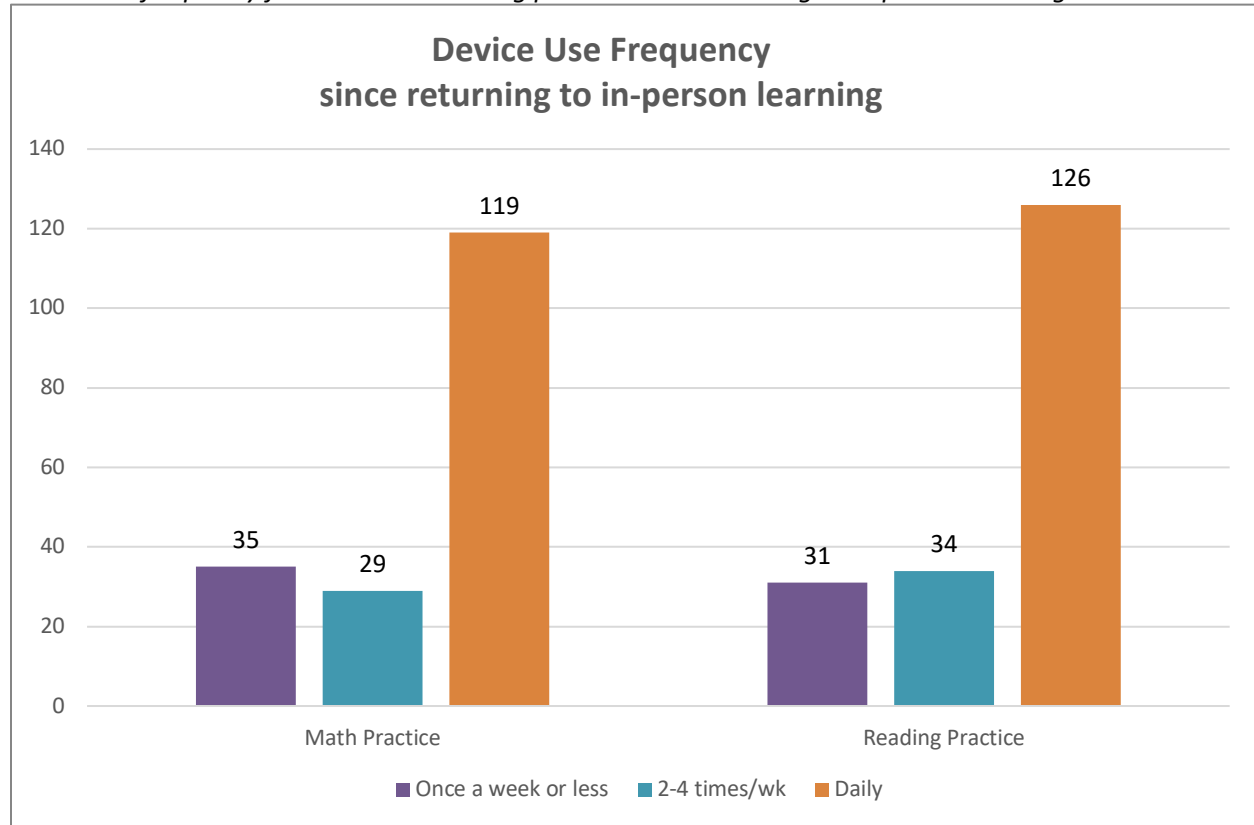
In summary, it appears that teachers are leveraging their one-to-one device programs primarily for two purposes: first for differentiating instruction, particularly for struggling learners and second, for practicing basic and newly-learned skills. Teachers are incorporating more technology into their instruction now that students have a device each. Some are using their one-to-one devices to help engage the students and to allow them to explore new options. Others use them to have students work on basic skills that many students lack proficiency in, such as math and reading. There are many tools available to them now, that can allow students to work at their own level while they're developing these skills, and lessons can be differentiated for each student as they now each have a device.

Discussion

The 394 responses to the online survey regarding teachers' perceptions of the use of technology in the classroom at NJ Urban school district provided data on the ways teachers in the district use technology in their classrooms, their past and current experiences, and their opinions on the future use of one-to-one devices. The teachers' responses helped to enlarge the pool of information available on teachers' experiences during the shutdown of schools and how they coped with the sudden pivot to fully remote learning. Their comments and insights provided detailed information that both fit with, and expanded on, the results of prior research in a number of areas, including (1) the importance of professional development; (2) the sustaining effects of remote teaching and learning; and (3) one-to-one devices as a way to differentiate and better individualize teaching and learning.

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Implications

Importance of Professional Development and Training

Professional development in technology has been cited as a necessity in the drive to get teachers to incorporate more technology in their classrooms (Hammond, 2017; Kopcha et al., 2020). Hover and Wise (2022) found that 79% of the teachers they surveyed would like professional development on how to integrate more technology into their classes. But simply offering professional development is not enough: it has to be relevant, to fit in with teachers' curriculum, and most importantly, teachers need to be given time to practice it before being mandated to use it in their lessons (Bauer, J., & Kenton, 2015; Cuban et al., 2001; Hammond, 2017; Superville, 2021).

As mentioned in the literature review, studies have found that a teacher needs 40 hours or more practice on a new application before feeling confident in using it (Hammond, 2017), but most professional development classes in NJ Urban are less than two hours long. This is an issue recorded in other research also (Ertmer & Ottenbreit-Leftwich, 2010; Hammond, 2017; Kopcha et al., 2020), and as such, it would seem that additional practice time provided to teachers would allow for a smoother rollout of new applications in the classroom. As the survey responses showed, many of the teachers said that having the extra time to practice using technology helped them gain confidence and feel more comfortable using it in the classroom since their return to in-person teaching. With the current shortage of teachers, it may not be possible to allow teachers extra time to practice their technology skills, but the recent suggestion by Winter et al. (2021) to provide teachers with buddies that they can work with to practice technology skills may be one method to try, as they can provide support and encouragement for each other both in and out of the classroom.

The teachers who responded to this survey bear out and support the earlier work of Bauer and Kenton (2005), Darling-Hammond (2017), and Cuban in various studies in the early 2000s. It is unfortunate that today's teachers still feel they do not get enough time to work on their skills. When given enough time, teachers are willing and able to learn new technologies and to incorporate them into their lessons. The NJ Urban district now has a number of different programs for class management, reading, writing, math, and science for teachers to choose from, but some teachers found it difficult to decide which ones to use, and so stuck to the ones they were most familiar with. Future professional development should try to expand teachers' repertoires by giving subject-specific sessions on the details of applications and then showing the teachers how to integrate them into their lessons, and how to move from one application to the next without disruption.

The NJ Urban district now uses Classlink which allows students to have one login for all applications, which eliminates the need to sign into individual applications. Therefore, it is easier for students to switch between applications without having to log out and then log in again. Some of the teachers do not yet know how to utilize this to their advantage in the classroom, so future professional development should be directed at getting the teachers familiar enough with switching between applications that they are encouraged to use more of them in their lessons. For example, the district now uses Nearpod, which has many pre-made lessons available on a variety of subjects. This application allows teachers to edit these existing lessons and it also allows for creation of new lessons from scratch, with links to videos, sound recordings, and gamified quizzes. However, many of the teachers do not yet know how to edit them, or to create their own lessons, so can only use the pre-existing ones, which may not suit their needs exactly. This application could be better utilized if teachers received professional development sessions that went into detail on all the options that are available, and then gave the teachers time to try them out and practice.

The data from this survey supported these previous studies, as many of the teachers said that although professional development was important in introducing them to new applications, having time

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to practice those applications after professional development classes was what helped them become confident enough to include more technology in their instructional plans. Being able to select the topic themselves, instead of being told which application to learn, also helped teachers, by allowing them to choose the applications and topics that best fit with their instructional plans. A report by Bushweller (2022) on a recent survey by *Education Week* described how most teachers feel the professional development they receive is inadequate, and most importantly, that there is a lack of follow-up to see how teachers are doing. The majority of teachers in his study reported a "one and done" approach to professional development on technology, which is not very helpful to teachers as they try to integrate more technology into their lessons (Bushweller, 2022). This view is supported by the comments of teachers in this survey, that there needs to be better professional development, preferably with follow-up from a technology coach or leader within the school, to help teachers troubleshoot any problems they later encounter. In order to provide relevant professional development, it is important that school and district leaders not only emphasize its importance, but also talk to their teachers beforehand, to solicit their input on the type of professional development that would best benefit both them and their students (Cuban et al., 2001; Hammond, 2017; Superville, 2021).

A long-term goal in many school districts has been to procure one-to-one devices for all students. The COVID-19 pandemic accelerated that goal into a very compressed period, without time for sufficient professional development/training of teachers, with many being left to fend for themselves in regard to how the devices were going to be used to teach their students remotely (Machusky & Herbert-Berger, 2022). NJ Urban teachers have learned many lessons over the past 2 years-information which could be valuable to school administrators in planning future technology/application rollouts and/or professional development. Knowing how NJ Urban's teachers are using these devices in the classroom can help school administrators identify future professional development needs and may perhaps influence their decisions on whether or not to continue with a one-to-one device program.

Sustaining Effects of Remote Teaching and Learning

The responses to this survey also provide support for the sustaining effect of the intense period of technology use during the shutdown. The vast majority of teachers indicated that they now use more technology more often than they did prior to the shutdown. From the teachers' responses, it is clear the vast majority of them have gained new technology skills. It is important that teachers be encouraged to continue to develop their skills and to use them to help their students regain some of the lost learning they suffered due to the COVID-19 pandemic shutdown of schools. Ertmer et al. (2001), spoke of the extrinsic and intrinsic factors that dissuade teachers from using technology. They noted extrinsic factors were a lack of access to hardware/software, lack of time to plan instruction using technology, and lack of support from technicians and administration. Intrinsic factors were teachers' beliefs about teaching and technology, and their reluctance to change established classroom practices. According to Taimur et al (2021), the pandemic shutdown of schools essentially removed these barriers, as teachers had no choice but to use technology, and students had no choice but to learn on technology. This time focused solely on technology has resulted in an increase in skills and confidence for all parties concerned, and the question that now arises is: how do we sustain these changes and continue to incorporate technology into the majority of lessons?

Newmann (2021) suggests some practical ways to sustain these gains: we should celebrate the gains made by teachers, who have learned how to successfully incorporate more technology into their lessons, and who are mining its ability to differentiate learning and reach students at every level. These gains need to be built on, by providing teachers with appropriate professional development and time to practice integrating new applications into their lesson plans. Finally, teachers need to be asked for their input, to see exactly what their needs are, and to give them choices to select what type of programs would

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best fit into their teaching repertoires.

This study took place at the end of the 2021-22 school year, when teachers had been back in the classroom for a full year after the COVID-19 pandemic shutdown, and the vast majority of teachers reported that they continued to use technology in more of their lessons than they had prior to the shutdown. This gives support to the findings of Darling-Hammond (2017), Taimur (2021), and Vu et al (2019) that appropriate professional development and time to practice are determining factors that increase the probability of teachers using classroom technology. It also provides hope that there may be a sustaining positive effect of the otherwise unfortunate time of remote teaching, if teachers continue to include more technology in their instructional lessons. The challenge now is to ensure that teachers feel supported in their technological development and that they are encouraged to retain and build on the gains they have made since March of 2020.

As mentioned earlier, according to a recent study of teachers in Ireland, one way to do this is to create a buddy system for teachers, where they are teamed up with another teacher, and work together to support and encourage each other in their efforts to integrate more technology into their classrooms (Winter et al., 2021). They also suggest that school district technology experts should provide support to each school as they work towards their technology goals. With continued support and encouragement from school leadership, the ideal prospect of sustaining the growth in technology knowledge and use by teachers in NJ Urban may become a reality.

The Potential Benefits of One-to-One Devices

Vu et al (2019), in their study on the implementation of a one-to-one program in a mid-western school district found that, with the addition of one-to-one devices, teachers discovered how useful one-to-one devices could be in helping struggling students become more engaged in their learning. As we try to help students increase their learning and catch up on any lost learning due to the period of remote schooling, one-to-one devices can be a useful tool. Teachers' responses to this study's survey indicated that they were now more familiar with how to use one-to-one devices to differentiate their lessons according to students' needs and abilities. With each child now having a device, it is easier for teachers to assign them work on their personal level and in areas where they need the most help. One-to-one devices can also help to keep those students who find working with pencil and paper difficult focus better on their learning and be more attentive to their lessons (Hover & Wise, 2022).

<div align="center">Conclusions</div>

The biggest, and simplest takeaway from this study is that NJ Urban teachers need more time: time to learn, time to practice, and time to give and receive help on their journey towards technological fluency. This study has shown that teachers are quite capable of including more technology in their instructional lessons, and in fact, the vast majority of the respondents continue to include more technology in their lessons than they did prior to the period of remote teaching and learning in 2020-21. Teachers today have huge demands on their time, from students, from principals, from administration, from parents. The biggest service we can do for our teachers is to give them more time, to work on what they know and need to give our students the best education they can. It is time to appreciate all that our teachers do, and it is time to stop piling on extra tasks and paperwork that really do not help our students, but are put in place to help our administrators. Teachers are overwhelmed with paperwork, and much of it is unnecessary or "busy work" and of no direct benefit to students. With the current shortage of teachers and the increase in teachers quitting the profession, it may be time to hire more aides and/or clerical staff who can take on those time-consuming tasks that take teachers away from teaching. Reducing the amount of paperwork teachers are responsible for would give them more time to focus on what is really important

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– their students' learning. It may also improve job satisfaction, and reduce the number of teachers wanting to leave the profession.

Apart from the fact that all teaching was done using technology during the pandemic shutdown, another huge factor was that teachers were given back the time that they would normally spend creating progress charts, graphs, and reports for display in the classroom or hallway, or to send to the principal or administrators at their schools; they no longer had to sit through department or school-wide meetings. With this extra time, teachers had the opportunity to explore and learn about technology in a way which was impossible before, and our teachers are better for it. They now have more tools in their pockets to help them reach every child, to help bring up to standard those students who struggle, and to stimulate those students who are ready to forge ahead with something new. It is very important for us to give teachers time to learn, as well as time to teach, because every time a teacher learns a new skill, they pass it on to their students, and we all win when that happens.

In terms of future research, surveying teachers in different types of districts would be interesting to see if their perceptions of classroom technology are consistent with those in NJ Urban. It may also be of benefit to survey students, to explore their perceptions of one-to-one devices and classroom technology, to see how they feel they can best benefit from them.

In conclusion, the results of this study show that one-to-one devices are now an integral part of many NJ Urban teachers' instructional strategies. They are being used not only to help catch students up on what they missed during the period of remote learning, but also to differentiate lessons according to students' interests and abilities. There are many applications that can allow students to explore places and things that they are not familiar with, and applications like virtual reality tours can help expand students' understanding of other countries and cultures.

While one-to-one devices may help expand students' horizons, they are no substitute for good pedagogy. Following the shutdown of schools for so long, there is now a greater need than ever for good teachers, and a need for an increased emphasis on basic skills, such as reading, handwriting, and math, to enable students to reach their full potential. Teachers have worked hard to improve their technological skills and are now using them in the classroom more frequently to benefit students. In order to sustain this increased use, their efforts should be recognized and rewarded, and teachers need to be supported as they work to expand their technological repertoire.

The implications for administration are that NJ Urban teachers should be consulted and included in discussions on district policy regarding purchase of new applications, to make sure they actually fit with the curriculum, and with the teachers' instructional methods, and to avoid spending money on applications that teachers will not use. When planning for professional development programs, it would behoove NJ Urban administrators to budget more time for teachers to learn and practice their new technology skills, in order to grow and sustain the gains they have made over the past two years.

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Appendix A
Sample of Survey Questions on Classroom Use of Technology

This survey is to explore how your instructional practices regarding technology may have changed after a year of remote learning. As such, the first set of questions should be answered from the perspective of your pre-pandemic practices (prior to March, 2020), as best as you can recall. The second set of questions should be answered from your current perspective, since you returned to in-person teaching for the 2021-22 school year.

Q5 Prior to the Covid-19 Pandemic shutdown (March 2020), did you have a Smartboard/Promethean board in your classroom?   No/Yes/Do not recall
Q6 How often did you use your Smartboard/Promethean Board with your students?
        Once a week or less /2-4 times per week /Daily /Do not recall
Q7 Did your students have a school-issued device to use prior to the Covid-19 Pandemic shutdown?
        No /Yes, one shared with other students /Yes, one per student /
Q8 Did you have a school-issued laptop/PC for your use?
        No /Yes /Yes, but I preferred to use my personal laptop /Do not recall
Q9 How often did you use your laptop/PC for the following tasks?
        Daily /2-4 times per week /Once per week or less
        Email /Grading /Lesson planning /Online meetings: Zoom/Google Meet, etc. /Professional
        development /Research for future lessons

Please answer the remaining questions from your current perspective, having returned to in-person teaching (2021-2022 school year).

Q10 Do your students currently have a school-issued device they can use?
        No /Yes, one shared with other students /Yes, one per student
Q11 How often do your students use their 1:1 devices for the following tasks?
        Once a week or less (1) 2-4 times per week (2)   Daily (3)
Communicating with you/other teachers /Cooperative or group projects /Creating presentations /Practicing math online /Practicing reading online /Researching a topic for class /Responding to an activity on Smart or Promethean Board (e.g. Kahoot, Quizizz, etc. /Writing assignments
Q12 Are there other activities for which students use their 1:1 devices?_____
Q13 Since you returned to in-person teaching (2021-22), how often do you use 1:1 devices with your students?   Once a week or less /2-4 times per week /Daily (3)
Q14 Has the number of times you use 1:1 devices changed from what it was prior to the Covid-19 Pandemic shutdown?
        Yes, I use them less now /I use them the same amount as before /Yes, I use them more now
Q15 Why has your use of 1:1 devices changed?_____
Q16 If you had the choice, how often would you choose to use 1:1 devices with your students?
        Once per week or less /2-4 times per week /Daily /
Q17 Are your students typically allowed to bring their 1:1 device home?
        No /Only when going to remote learning /Yes
Q18 Do you now have a school-issued laptop/PC for your use?
        No /Yes /Yes, but I prefer to use my personal laptop
Q19 How often do you now use your laptop/PC for the following tasks?
        Once a week or less /2-4 times per week /Daily
        Email /Grading /Lesson planning /Online meetings: Zoom/Google Meet, etc./Professional

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development /Research for future lessons

Q20 Compared to before the Covid-19 Pandemic shutdown, how comfortable are you now with using technology in your lessons?

Less comfortable /About the same as before /More comfortable

Q21 What has changed about the way you use technology in your lessons, since you returned to school in September 2021?

Q22 Why have you made these changes in the way you use technology to teach?

Q23 Which of the following would encourage you to increase the use of technology in your instructional lessons? Select all that apply.

having a technology coach in my school /more professional development /support from administration /support from other teachers /time to practice new applications /Other

Q24 How much learning loss do you think your students have after being remote during the Covid-19 Pandemic shutdown?   None /A little /A great deal

Q25 What do you think is the most important thing teachers need to focus on right now?

Improving math /Improving reading /Improving writing /Social emotional learning /Other/All the above

Q27 What are your perceptions on using 1:1 devices to help reduce learning loss?

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Thriving in the Superintendency: Female District Leaders Share Their Journeys

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Women in education are strongly represented in the classroom but are much less likely to become school district superintendents. The purpose of this phenomenological study was to understand how women who have been superintendents for at least 3 years experienced mentoring and role preparation as they worked to attain the position. A transcendental phenomenological research methodology amplified and highlighted the voices of interviewees. Prominent themes included the glass ceiling, family influence, career pathways, mentoring and sponsorship, representation, volition, and personality characteristics. The underrepresentation of women in the superintendency is not changing quickly enough and perpetuates gender inequality in educational systems.

Keywords: superintendent, women superintendents, female superintendents, representation, superintendent gender discrepancy, superintendent career pathway, superintendent mentoring, superintendent glass ceiling

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School leaders significantly influence the quality of education in public schools, so it is imperative that an equitable representation of the most qualified candidates can access the superintendency, the top position in school district leadership (Miles Nash & Grogan, 2021; Wyland, 2016). The role of the superintendent is pivotal in determining and implementing the vision and mission of an organization, as well as maintaining an organizational culture that supports high achievement for all (Allred et al., 2017). Consequently, only the most prepared and exceptional educators should aspire to this position. As females make up over half of the teacher leaders in public schools, understanding how successful female superintendents experience mentoring and preparation for the position may inspire more women to consider pursuing the superintendency and reduce the significant gender disparity associated with the role (Fuller et al., 2018; Hill et al., 2020; Muñoz et al., 2018).

Research is consistent over several decades regarding the majority representation of females in both educational leadership and teaching roles (Wyland, 2016). Women hold most teaching positions nationwide yet are much less likely to be superintendents (McCord & Finnan, 2019; National Center for Educational Statistics [NCES], 2012). This disparity continues, despite the rising number of females enrolled in superintendent preparation programs and deliberate efforts to encourage women in the principalship or engaged in other applicable career paths to consider pursuing the district leadership role (Allred et al., 2017). This trend is consistent when examining the representation of women in leadership roles. For example, female teachers are considerably less likely to enter school administration than similarly prepared and qualified male counterparts (Bryant et al., 2017; Connell et al., 2015; Miles, Nash, & Grogan, 2021).

There are many key elements that influence the pursuit and attainment of the superintendency. Preparation, personal volition, mentoring, and professional networks all contribute to the decision to pursue the role and to providing access to the position (DiCanio et al., 2016; Grossane & Tatum, 2019; Howard et al., 2017; Wyland, 2016). Understanding gender differences in career pathways, professional opportunities, volition, mentoring, and superintendency hiring trends will inform systems and promote equitable access and preparation for district leadership (Hill et al., 2020).

Problem Statement and Significance of the Study

This study examined how female superintendents experienced mentoring and preparation for the role of school district leader. Statistics provide trends and describe prevalence, but a nuanced and sophisticated understanding of the path to the superintendency requires rich description if personal topics are to be explored and authentic experiences understood (Janesick, 2019; Wieczorek & Manard, 2018). In-depth interviews with current or recently appointed female superintendents allowed for an examination of the diversity of experiences related to career pathways, leadership opportunities, mentoring, and the hiring process. Connell et al. (2015), Liang et al. (2018), and Muñoz et al. (2018) investigated these elements to discover important supports and barriers to the superintendency for women. This study examined how female superintendents understand and describe these elements as well as the additional influences of volition and personal support systems, while remaining open to any themes that emerged as the female educational leaders described their unique experiences. Ultimately, a more comprehensive understanding of how women have successfully entered the superintendency

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can support qualified female educators and inform preparation programs to address gender disparity in this critical position (Miles, Nash, & Grogan, 2021; White, 2021).

Women in educational leadership roles often agree that their experiences are different from those of male counterparts (Weiner et al., 2019). Furthermore, these differences are even more pronounced for females identifying as part of non-majority racial and ethnic groups (Liang et al., 2018; Weiner et al., 2019). To better understand the experiences of successful female superintendents, Wyland (2016) investigated the barriers and supports to the superintendency for female leaders in Minnesota. Participants in the study identified gender bias and familial responsibilities as significant challenges to attaining the position, while recognizing the positive influence of professional mentoring and the personal characteristics of resiliency and tenacity. Hill et al. (2020) explored the same themes in their interviews with female superintendents and had similar findings.
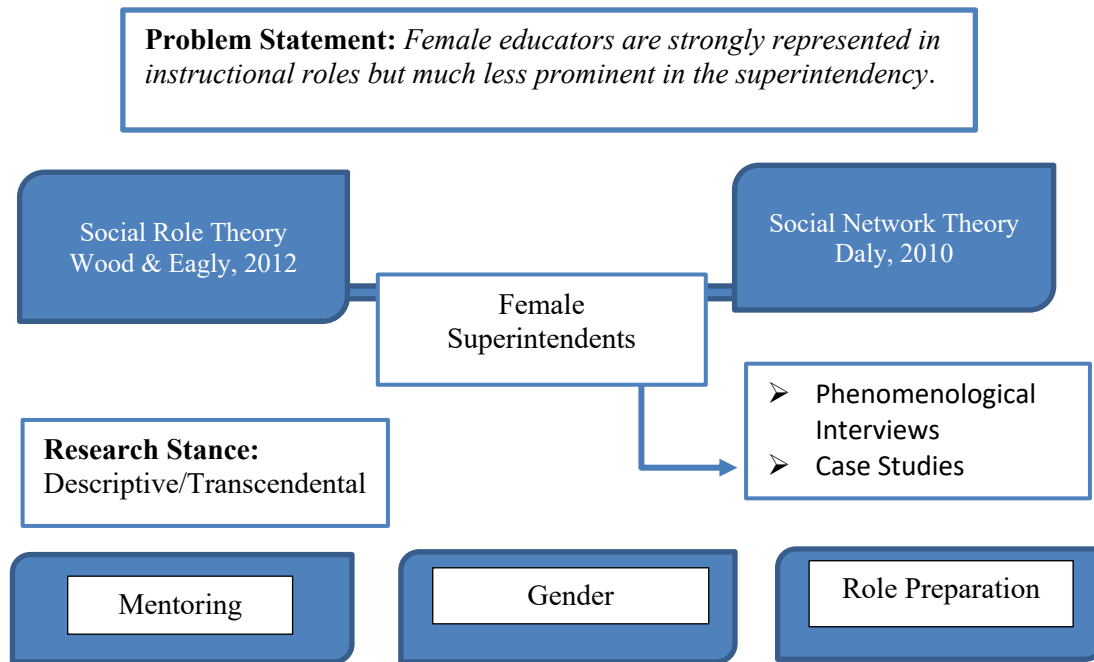
The aforementioned studies notwithstanding, current scholarship regarding the experiences of female superintendents is limited (Janesick, 2019). More prevalent in recent literature is the exploration of gender differences in attaining the principalship, and the supporting influences that contribute to a more equitable representation of women in school building leadership (Fuller et al., 2018; Lee & Mao, 2023). This is a critical step as it is difficult to address gender disparity in the top district leadership role if there is a scarcity of highly qualified female principals. Furthermore, Wallace (2015) posited that at current rates at the time of the study, it would take more than 80 years for women to achieve equity in attaining the superintendency. This makes the focus of this study timely and relevant as there is a need for more understanding of how successful female superintendents prepare for the role and attain the position.

Theoretical Foundations and Conceptual Framework

Understanding the unique and rich experiences of female superintendents as they reflect on attainment of the position, the role of mentoring and sponsorship, and gender-related differences in these experiences (Drake, 2023; Muñoz et al., 2018), allows for exploration of the unique journeys of women aspiring to the highest levels of educational leadership. Grounded in social role theory (Wood & Eagly, 2012) and social network theory (Daly, 2010), the influence of mentoring relationships and gender-based social norms could be investigated thoroughly through thick descriptions of the personal experiences of female superintendents. This deep understanding of the critical role of mentoring may present a clearer pathway to the superintendency than experienced by this investigator and support the professional development of female leadership in education.

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Figure 1
Conceptual framework of female superintendent experiences.

Problem Statement: *Female educators are strongly represented in instructional roles but much less prominent in the superintendency.*

Social Role Theory
Wood & Eagly, 2012

Social Network Theory
Daly, 2010

Female Superintendents

➢ Phenomenological Interviews
➢ Case Studies

Research Stance:
Descriptive/Transcendental

Mentoring

Gender

Role Preparation

Purpose of the Study

Female superintendents bring a unique perspective that is needed if the educational system is to reflect the demographics of a community and meets the needs of all learners (Allred, et al., 2017; Janesick, 2019). This viewpoint represents the diversity of experiences and strengths that mirror those of students and the greater community. It is certainly not possible for one woman in district leadership to speak for all female constituents, but it is critical that collectively, educational leaders resemble all members of society, and women are represented proportionally (Weiner et al., 2019). Therefore, upward mobility for women is a social justice issue when those most qualified are restricted from accessing key leadership roles based on gender or other marginalized categories, and the children served by school systems are witness to this discrepancy (Connell et al., 2015; Muñoz et al., 2014; White, 2021).

This study is significant as it addresses important gaps in the literature related to the current experiences of female superintendents in more diverse geographical locations. Much recent scholarship is focused on superintendents from only a few parts of the United States, which may not represent the experiences of female district leaders in other locations (Allred et al., 2017; Rohwer, 2018; Wyland, 2016). Additionally, the unique career pathways of women and their experiences of mentoring relationships, need further exploration if a successful roadmap to the superintendency is to be identified.

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Research Questions

This phenomenological study deepened understanding about the experiences of female superintendents as they prepared for and aspired to the top educational leader position at the school district level. Inquiry was grounded in these essential questions:

R1: How do female superintendents experience mentoring throughout their professional pathways?

R2: How do female superintendents experience preparation for attaining a superintendency?

Review of the Literature

Understanding the experiences of women as they aspire to and attain the role of superintendent begins with clarity regarding current female representation rates (McCord & Finnan, 2019) and the influence of social roles and networks (Daly, 2010; Wood & Eagly, 2012). It is with this foundation that the importance of mentoring, sponsorship, and professional preparation can be explored and pathways to top educational leadership positions identified. These interwoven influences contribute to the desire of female educators to pursue the superintendency and are the primary themes explored in this synthesis of research (Bryant et al., 2017).

Consideration of the unique professional journeys of female superintendents is grounded in previous literature related to the topic as well as research in the areas of mentoring and leadership. Additionally, the minimal existing data regarding the prevalence of females in the superintendency must be analyzed. No central agency is required to keep hiring statistics, so studies including this information are rare. The School Superintendents Association (AASA) is the only source of current data in the United States, which consistently estimates the ratio of male-to-female superintendents as slightly less than four to one (McCord & Finnan, 2019; U.S. Department of Education (USDOE), National Center for Educational Statistics, 2012). The low percentage of female superintendents makes understanding the unique perspectives of female educational leaders critical if more women are to pursue and attain the top educational role.

The literature related to the experiences of female superintendents as they attain the position and successfully navigate the role is limited, especially regarding how these leaders experienced mentoring and professional preparation. Studies that are quantitative and mixed methods in nature provide some foundation for understanding the prevalence of female superintendents and demographic information, but current data is limited by the lack of governmental agency responsibility for tracking superintendent hiring (McCord & Finnan, 2019). Consequently, the AASA is the main source of information related to superintendent hiring trends (McCord & Finnan, 2019). Qualitative studies provide more depth of understanding related to the experiences of female superintendents, but more current research is needed. Based on this review of literatures, which is founded in a theoretical framework using social role theory and social network theory to understand the experiences of female superintendents, there was sufficient reason for thinking that an investigation examining the influence of mentoring and role preparation would yield socially significant findings.

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Research Methodology

The methodological approach of a qualitative, transcendental phenomenological study was used to explore the detailed and personal experiences regarding mentoring and role preparation of female superintendents in the Pacific Northwest. Therefore, the sample was limited to a select group of female superintendents who possessed the attributes of women who have successfully navigated the journey to the role of superintendent. This limited sample allowed for thick and rich description throughout the interview process, resulting in a deep examination of the experiences of every participant.

Phenomenological research explores a specific phenomenon through the lived experiences of people, developing deep understanding through a perspective that is free of bias and presuppositions (Beck, 2021). Phenomenological methodologies are varied but are generally categorized as descriptive or interpretive (Beck, 2021; Vagle, 2016). Transcendental phenomenology is a descriptive approach that asks the researcher to transcend their own consciousness to study the experiences and perceptions of others without preconceptions (Giorgi, 2012; Vagle, 2016). This study follows the Moustakas (1994) approach to transcendental phenomenology through overtly bracketing, or setting aside, the presuppositions and biases of the researcher to deeply understand the lived experiences of participants. Ultimately, a transcendental phenomenological study will culminate in a synthesized statement of meaning regarding the essence of a phenomena (Moustakas, 1994). This approach was most appropriate for this study as the research questions are centered on developing a rich understanding of the journeys and experiences of female superintendents.

This study was founded in the three-interview protocol detailed by Seidman (2019), an appropriate data-gathering methodology for the qualitative, transcendental phenomenological approach of this research (Moustakas, 1994). The three interviews, each unique in focus, allowed for the personalization of the experiences of each participant while rapport with me was developed. A quantitative or mixed-methods research design would have constrained the opportunity to hear the personal stories and experiences of the participants and focus attention on the details of their unique journeys, which was the foundation of this study (Moustakas, 1994).

Research Design

Seidman (2019) detailed a protocol for conducting a series of three consecutive interviews that allows for a rich exploration of participant experiences, as well as an opportunity for participants to make meaning of their reflections and check for researcher understanding. Ultimately, this study culminated in a greater understanding of the pathway to the top educational role for many women aspiring to the position (Creswell & Poth, 2018).

The interview protocol in this study was selected to elicit detailed and personal reflections on the lived experiences of participants. The rationale for multiple interview sessions was to help the interviewee organize their recollections and to develop rapport with me as more probing questions were introduced (Seidman, 2019). Interviewees first described their personal and professional journeys, then expanded in the second interview section to sharing their current experiences in the superintendency and concluded in the third portion by making meaning of their reflections and experiences.

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The interview protocol was semi-structured, meaning that each participant had an opportunity to answer the same questions, and a general timeline for each of the three interviews was adhered to (Seidman, 2019). Interviews each had some structure to maintain consistency, but intentionally remained open-ended and flexible, allowing individuality of responses and removing constraints that might impede a rich understanding of the unique experiences of each participant (van Manen, 2015; 2016). I recorded the interviews, transcribed them for analysis, and also kept detailed field notes that contained my reflections and observations during the interview process. The field notes were an additional source of data that could be shared with participants for their feedback if necessary.

Participants for this study were women serving in the role of superintendent in the Pacific Northwest. The Pacific Northwest was defined as the states of Washington, Oregon, and Idaho. A representative sample of women in the superintendency in the Pacific Northwest gave more meaning to this study, therefore potential participants were recruited, then assigned to the study based on school district size and tenure in the role.

Geographical residency is important as the essence of the phenomena captured may be different based on regional considerations. The attribute of tenure in the superintendency is essential as well since the length of tenure, or time serving in the superintendency, shapes the understanding of role preparation and the influence of mentoring. Consequently, participants were required to have at least three years in the superintendency to participate. These three attributes allowed for a sample that can best capture the lived experiences of women serving as superintendents in the Pacific Northwest.

Table 1
Superintendent Demographics

Pseudonym	Tenure *Years as Superintendent*	School District Size *Student Enrollment*	School District Location *Geography*
Jordan J.	< 5 Years	Small	Rural
Angela L.	>10 Years	Large	Urban/Suburban
Jessica J.	5-10 Years	Midsize	Urban/Suburban
Kelly A.	>10 Years	Midsize	Rural
Jamie R.	5-10 Years	Midsize	Rural
Samantha M.	5-10 Years	Large	Urban/Suburban
Hailey S.	< 5 Years	Small	Rural

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Data Analysis Procedures

The process for analyzing the data associated with this study was founded on the recommendations of Moustakas (1994) and Seidman (2019). Specifically, I implemented the modification of the VanKamm method of analysis of phenomenological data (Moustakas, 1994). Grounded in a transcendental phenomenological approach, the interview transcripts and field notes related to each participant were analyzed for statements of interest, employing horizontalization to give each segment equal consideration (Seidman, 2019). When all notes of interest were identified, I implemented a winnowing process to ensure remaining statements were relevant to the study and were invariant constituents of the experience (Moustakas, 1994; Seidman, 2019). These remaining notes of interest were examined for commonalities and grouped into clusters of meaning, which became the elements embedded within larger thematic groups (Moustakas, 1994).

The aforementioned process included two rounds of coding. Both rounds utilized the computer-assisted qualitative data analysis software (CAQDAS) system NVivo. The first cycle of coding used an in vivo coding method to capture the authentic voice of participants by using quotes and explicitly deriving labels from these phrases (Saldaña, 2021). Second cycle coding followed the pattern coding methodology to coalesce the first cycle categories into a more concise list of thematic groups (Saldaña, 2021).

I engaged in epoche, the bracketing of personal experience, throughout the data analysis process by transparently identifying, noting in journaling, and setting aside any preconceptions (Moustakas, 1994). This was essential in order to focus on prioritizing the voices of participants and their lived experiences throughout the development of categories and themes (Seidman, 2019). From these thematic groups I developed individual textural and structural descriptions for each participant as well as a description of the essence of their experience. Finally, these individual descriptions were synthesized into a composite statement describing the essence of what it meant for these female superintendents to experience mentoring and role preparation as they aspired to the top school district leadership position (Moustakas, 1994).

Limitations

The experiences of participants are the main focus in studies with a transcendental phenomenological approach, but the primary limitation of this methodological design is the influence of the researcher. Epoche keeps the primary investigator aware of personal bias and preconceptions, but it is not possible to fully eradicate this influence (Creswell & Poth, 2018). I included weekly journaling of analytic memos to guide personal reflection throughout the investigative process. This overtly bracketed personal experience and made any biases easier to identify.

It is important to note that the geographical location of the study was a considerable delimitation. All participants were recruited from the Pacific Northwest, specifically Washington State. This delimitation was purposeful, as previous scholarship related to this study topic in the Pacific Northwest region is very limited. Understanding the lived experiences of purposefully sampled participants in this specific geographical area will inform regional institutions that prepare superintendents and the school districts that support women aspiring to the top

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leadership role.

Results

Throughout the data analysis process, the theoretical frames of social role theory (Wood & Eagly, 2012) and social network theory (Daly, 2010) were considered. This grounded the analysis in the foundations of this study, connecting the experiences of participants to the research that supported the commonality of their experiences. Some events or impacts were very individual in nature, while many were more universal. The limited research in this area so far has not been specific to the Northwest region of the United States. There may be regional differences in experiences, so it is important that a more varied understanding of professional journeys is explored.

There were seven current superintendents who participated in this investigation. All of them have served in the role of superintendent for at least three years. These leaders have been in the role for a variety of tenures. Some were in smaller districts and others were in moderate or very large districts across the Pacific Northwest region. Regardless, they share many common reflections, as well as some very unique experiences. All of them participated because this topic is very important to them personally, and they recognized the significance for the profession.

It was evident that some of the questions were easy to address while others elicited significant emotion. Each superintendent had their unique level of initial transparency, but as rapport developed, they were all willing to share many details that impacted their lives and their careers. Upon assurance that all identifying details would be removed, both from their identities and past places of employment, these women bravely gave witness to what they had been through and what they are experiencing currently. They engaged in this process for different reasons, but each person expressed a deep desire to pave the way for future female educational leaders.

Six main themes emerged during the data analysis process. The themes were: 1) mentors, sponsors, and representation make the difference; 2) readiness and volition; 3) career pathway; 4) family influence; 5) hitting the gender-related glass ceiling; and 6) grit, hope, joy, and optimism. There were subthemes for each major category, and these subthemes were more distinct elements of participant experience that related to each primary theme. Subthemes were common elements relating to a broader category that did not have enough detail on their own to emerge as a theme but were consistently addressed in multiple interviews. It has been the sincere hope throughout this investigation that the voices of the participants would lead the way, illuminating the journey to and throughout the superintendency in a way that demonstrates the richness and depth of their unique stories. Sharing their insights and experiences with their own words and finding commonalities within the sisterhood of the superintendency seems the most authentic way of ensuring this priority is realized as results are considered. Table 2 displays the themes and subthemes in relation to the research questions. One theme, readiness and volition, relates to both research questions so appears in the table twice.

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Table 2
Themes and Subthemes Aligned to Research Questions

Career Pathway	R2
Atypical Journey	
Building Administration	
To Teach or Not to Teach	
Grit, Hope, Joy, and Optimism	N/A
Personality Traits and Job Satisfaction	
I Would Do It Again in a Heartbeat	
Physical and Emotional Impacts	
Relationships and Sustainability	
Family Influence	R2
College Expectations and Educators in the Family	
Importance of Family Support and Examples of Service	
Hitting the Gender-Related Glass Ceiling	R2
Work Ethic and Women Leaders	
Who are the Superintendents?	
Discrimination, Access, and the Token Female	
Mentors, Sponsors, and Representation Make the Difference	R1
Female Role Models, Mentors and Sponsors	
Representation Matters	
Tapping and Considering the Superintendency	
Readiness and Volition	R2
Self-Talk, Self-Doubt and Jumping In	
Motherhood Comes First and Too Many Trade Offs	

Career Pathway

There are differences and similarities between participants in terms of their journeys to the superintendency. Four interviewees have followed a fairly typical path. Three of the four have had decidedly atypical journeys, either by skipping expected career steps or because of credentialing. One superintendent is in the role and does not hold a state superintendent credential. In Washington State, the superintendent certificate is not an official requirement. Samantha M. was so valued in her district that she was invited to apply for the superintendency without the credential, even though it was understood that she was not willing to pursue the certification at that point in her life. She has been so successful and respected in the role that it is unlikely she will engage in a superintendent preparation program at this point in her career.

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Several participants had a fairly typical career pathway to the superintendency, with all but two spending time in the role of principal or assistant principal, and all serving in some central office position. Kelly A. was a principal but had that first experience as a superintendent/principal of a small district for two years. This dual role was very taxing. Kelly A. shared:

> I mean, I was burnt ragged, and by the time you try to do principal stuff during the day, and then at 5 o'clock, you're trying to have the brain power to do whatever superintendent work you're supposed to be doing. Yeah.

Grit, Hope, Joy, and Optimism

The participants had many characteristics in common yet had a variety of personality types. Kelly A. identified herself as an introvert and acknowledged that many superintendents are charismatic males. She described her leadership stance as one of humility and servant leadership. She also shared a sense of overarching fatigue and a decision not to pursue another superintendency whenever her current role ends. In contrast, Angela L. has had periods of time in her career where she needed a break and took some time away from work, but does love the job. She shared:

> I jokingly say that I'm kind of hardwired to be happy, and I think my parents were really happy people, just hard-working but happy. They had a lot of fun, a lot of joy in our house, a lot of laughs. So, I think that that, you know I've always been inspired by them.

Similarly, Samantha M. described herself as a very positive and happy person who is generally optimistic. This influences her work significantly:

> I just have a general I guess maybe attitude, or that I've loved every one of my jobs. I've never left one of them that I didn't like and so I've really loved. And I think that's just kind of my personality that I will- if I can't find joy-it. You know it's probably my perspective because everything about this is - this job isn't about me.

Family Influence

Nearly all participants noted that they were expected to go to college rather than having an overt conversation with family regarding their intentions. As Angela L. said it, *"…this was just the water I swam in."* None of the superintendents expressed pressure to go into any particular field of study, but going to college was a foregone conclusion. Jordan J. reflected:

> *The through line was you will go to college. There was never a conversation about college. It was what college are you going to? So? Um not a choice. It's just not a choice at all. And not even a conversation like, 'Oh, what are you gonna do after high school?' It's like, well, what college are you going to?*

Each interviewee expressed that they had the loving support of their parents. Several named the support of other family members as well. However, when asked if they would have been supported in their decision if they asserted that they did *not* want to attend a higher education program, several were unsure. In fact, the analytic field notes included several notations of surprise that the question was even asked.

Family influence, for all participants, was significant. What was unexpected was that regardless of an educational background in terms of career, family members instilled a sense of

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duty and a heart for service in these inspirational female leaders. These characteristics, along with parental work ethic as mentioned by Rohwer (2018), strongly influenced their development personally and as leaders. For each one of them, the work is bigger than themselves. They do it to make a difference and as an act of the service to which they have dedicated their lives.

Hitting the Gender-Related Glass Ceiling

There is both a recognition of the work ethic expected of female leaders, and the acceptable practice of male leaders leaving critical work undone while they maintain a reasonable work schedule. Participants recognized that some of the expectations came from within themselves, but most are sure that they must do more to compete for top leadership, or even to keep positions similar to male counterparts. Not as many participants as expected overtly, or even through suggestion, addressed competition with men as causing them to hit the glass ceiling. Three participants did state directly that they were competing with male colleagues who were doing less than they were or were less qualified. Sometimes this was within the same organization, while other times it was when they were applying for jobs in other school districts.

Mentors, Sponsors, and Representation Make the Difference

Each participant recognized how crucial it has been to have strong and supportive role models, mentors, and sponsors. Male colleagues or supervisors have been instrumental in encouraging female leaders to progress along the career ladder, and many have helped pave that way by mentoring them and overtly sponsoring them. Every superintendent in this study agreed that without strong mentors, they would not have the skills or dispositions to be successful in the role. This corresponds with the findings of Anderson and Wasonga (2017) regarding the perspectives of mentees regarding role preparation. It is interesting that two experienced participants noted that when they were entering the superintendency, or beginning credentialing programs, there were not very many female superintendents practicing in the districts around them. It is hard to envision yourself in a role when you have not met any women in the superintendency personally. It was over a number of years that there started to be more women in credentialing programs attended by participants, and none of them were in cohorts where women outnumbered men.

Readiness and Volition

Determining readiness for the role of superintendent is a complicated and important decision. What does it mean to be "ready," and is anyone ever ready? Several superintendents have said that no one is ever fully prepared, and that one just has to jump in and do the job. Upon evaluation of the interviews, it was evident that there is a connection between a person feeling ready and volition. A woman must first want to be a superintendent to attain the role, and there is a real lack of educational leaders who wish to become superintendents. In fact, Angela L. teaches in a superintendent credentialing program and has had more than one cohort where no one wishes to be a superintendent. She explained, *"We all know that the party line is to say the superintendency is the best job in education. And it is, but lately, students are telling me I will need to give some evidence to back that up."* The dearth of candidates wanting to enter the

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superintendency is a real concern among many educational leaders.

The participants interviewed for this study gave unfiltered, raw accounts of their experiences as they aspired to and attained a superintendency. They shared how their lives and careers were influenced by their experiences growing up, by their families, and by their professional colleagues. The interview experiences were semistructured and flexible enough to allow each participant to share what they found most relevant and important. It was hoped that the research methodology would give space for their authentic voices and accounts to lead the study, and that is why their words are so prominent in the results section of the full study. They shared a hope that studies such as this one will shine a spotlight on this critical issue and lead to some considerations for school districts and their school boards, search firms, and school administration credentialing programs.

Implications for Practice

Implications for practice include four important considerations. The first priority is for school administration credentialing programs and universities who administer them to include in their curriculum, direct conversation and guidance related to addressing obstacles connected to gender, race, and the intersection of these factors. Women in these programs would benefit from specific conversations about the inequality of female representation in the superintendency, particularly for women of color. Discussion about these topics should be commonplace. Candidates for the superintendency enter credentialing programs to receive strong preparation so they can be successful in the role. This preparation should include direction on managing the challenges to access that women face along this journey.

A second implication for practice is a change in how search firms engage in the leading school boards to select superintendents. Engaging more women to lead superintendent searches and the vetting of candidates will help address the unequal influence of White, male former superintendents leading many of the searches. These search leaders could play a powerful role in changing the perception of what a successful, powerful superintendent looks like. It is never the intent that women are promoted over men as an exclusive criteria, but search firms can advance qualified female leaders as exciting candidates when they are equally, though perhaps differently, qualified for the job.

Another key implication for practice is the training and education of school boards in the process of hiring superintendents. School board members do not all understand the important characteristics of effective superintendents, sometimes working from stereotypes and their own personal experiences. Prior to beginning a superintendent hiring process, it is critical that school board members are given information about the underrepresentation of certain leaders. They must be given a chance to understand which technical, personal, and social characteristics could serve their district best. With some clear guidance, school board members could become more inclusive and open to a diversity of leadership styles.

Lastly, improvements to formal mentoring programs could make a significant difference in the structures of support that make success in the role of superintendent sustainable. State superintendent organizations often have an established program in which they assign mentors to new superintendents. Unfortunately, stories of mentors who signed up to assist new superintendents not taking their phone calls or supporting them in any way are commonplace.

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Ensuring mentors who commit to participate in these programs engage meaningfully with their assigned mentees is very important, as is the careful matching of mentees with mentors. Improvements in these formal programs would provide an important safety net for those newest to the profession.

Recommendations for Future Research

Future research in this area of study could contribute to the body of knowledge by investigating this topic in other geographical areas, such as other states, or even internationally. There is little qualitative research that investigates female superintendent experiences deeply, and more scholarship is needed. It does not seem that there are any states where there are significantly more women in the superintendency compared to others, but a more geographically diverse collection of recent studies could illuminate regional differences that might be important. Similarly, a larger sample size would enhance this research, and could be an important extension of this investigation in the future. It should be noted that studies such as this one are challenging to conduct with a large sample size due to time constraints. Consequently, it could be that a team of investigators could replicate this study at a larger scale to analyze the transferability of these findings and potentially discover other important themes.

It would also be beneficial to consider research questions related to sustainability and the superintendency, the retention of superintendents, and the elements of job satisfaction in the role of superintendent. Analyzing these elements of the experience could result in better longevity, as well as inspire potential female leaders to consider the position. A few participants shared that they loved their work, and those superintendents were actually thriving professionally and personally. There are still too many superintendents, male and female, who are struggling to meet the demands of the job while maintaining their own wellbeing. Until this improves, the role is not very desirable to many potential candidates.

One area of promise for future research is the intersection of female educational leadership and women who lead in the field of business. Kroll (2017) explored the role of mentoring female leaders in business, investigating the perceptions of female executives engaged in formal mentoring programs. These findings could support the value of formalizing group mentoring experiences and opportunities more specifically than what is currently commonplace for educators. Similarly, finding opportunities to engage female leaders across sectors in experiences that allow them to share resources and ideas could expose those in the field of education to innovative and new perspectives.

It is possible that there are elements in place in other occupational fields that could support the retention and development of female educational leaders. If women who lead corporations and organizations in other sectors have identified and developed the required characteristics to sustain their work and find personal and professional satisfaction, it may be possible to incorporate these practices into the training of female educational leaders. This possibility is supported by Hill and Wheat (2017), as they found that female leaders in university systems were often engaged in mentoring with mentors who were male, non-traditional, or in other professional fields. Further investigation into these cross-sector partnerships could benefit women in a variety of professions.

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Conclusion

This study was conducted to understand how women in the superintendency experienced mentoring and role preparation on their journeys to the superintendency. The participant stories have been the source of the six primary themes, and the context of their professional pathways that have provided important nuance and detail. Their honesty and vulnerability resulted in common subthemes that are not only relevant but give witness to some of the most personal and significant findings in this study. There were many commonalities of experience, some of which were congruent with previous scholarship, while others were more surprising.

The significance of this investigation is that through the words of these women leaders, there can be an illumination of how female superintendents can be better encouraged, prepared, mentored, and supported along their pathway to district leadership. It starts very early in a professional career, and there is a role for all educators to play in encouraging those with the talent and characteristics to be powerful leaders who move up the ladder to roles of greater responsibility. Organizational leadership matters, and it matters most for the children being served in schools everywhere. They need to see people who look like them in positions of power and be encouraged to accomplish whatever they wish. The issue of the underrepresentation of women in the superintendency is much bigger that just professional achievement, as young people take notice when leaders are not a diverse and inclusive group.

In phenomenological research, there is often a synthesized statement of the essence and meaning of the phenomena studied. This is a culmination of the structural and textural descriptions of each participant, integrated into a statement representing the experience of the whole group of participants. This synthesized statement for this study is:

Female superintendents need each other, role models, mentors, and sponsors to make access to the job possible and the work sustainable. Celebrating unique pathways, skillsets, and contributions of families elevates the profession by adding a wonderful diversity to the educational leader field. This can overcome the glass ceiling and bring opportunity to future leaders. Developing grit, staying grounded in hope and optimism, and finding joy in the work make it a position that can fulfil and inspire over time.

This study is about thriving in the superintendency, rather than just surviving it. Attaining the position, if it is not work that brings joy and fulfilment, will be disappointing and lead to continued superintendent attrition. Women who lead school districts hope to make a profound impact but want to know they do not have to sacrifice their wellbeing and most important relationships to do the work. A holistically meaningful life is possible while being a superintendent, if the intentional development of mentors and role models who can light the way becomes a priority. May more women thrive in the superintendency in the years ahead.

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