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Effective Leader Practices to Leverage School Librarians as Leaders in One-to-One Computing

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Abstract

Research on one-to-one computing overlooks the role of the school librarian even though they are trained with the knowledge and skills to effectively support technology initiatives. This case study explores leader practices involving school librarians in a large district's shift to one-to-one computing. The findings indicate that leader practices include: incorporating the library in the vision, building the professional capacity of school librarians, engaging them as partners in curriculum and instruction development, and leveraging their expertise to procure, create, and access quality digital resources to support learning in a digital environment.

Introduction

Most districts in the United States now provide a computer device for every student, (Bushweiler, 2022). These initiatives are commonly referred to as one-to-one computing programs. A considerable amount of research on one-to-one computing has looked at evaluating the impact on student achievement, classroom uses, engagement (Harper & Milman, 2016; Islam & Grönlund, 2016), and the attitudes and perceptions of teachers and students (Zheng et al., 2016). There is also research on the planning, implementation, policies, and infrastructure of one-to-one computing initiatives (Dexter & Richardson, 2020; Imbriale et al., 2017; Richardson & Sterrett, 2018). To date, there is scant research on how the role of the school librarian can support the planning, implementation, or evaluation of one-to-one computing programs.

School librarians, however, are trained experts in areas relevant to one-to-one computing. The American Association of School Librarians (AASL) defines school librarians as highly skilled in locating and evaluating resources, teaching information literacy skills, building instructional partnerships, facilitating technology enabled learning, and delivering digital citizenship instruction (AASL, 2018; AASL, 2019). These skillsets are essential in supporting one-to-one programs and have also been recognized by authoritative educational organizations such as the International Society for Technology in Education (ISTE, 2023) and Future Ready School Librarians (Alliance for Excellence in Education, 2018). This study will use the AASL preferred professional title of school librarian rather than media specialist (ALA, 2010).

Even with these qualifications, school leaders often overlook and underuse school librarians in district technology initiatives (Harland et al., 2021; Johnston, 2012). Administrators often do not receive formal training on the roles of the school librarians in their educator/administrator preparation programs (Church, 2008; 2010), so their knowledge of school librarians as essential partners in supporting student achievement and the school environment is low (Church, 2015; Gavigan & Lance, 2015). The lack of awareness combined with the lack of research on the role of the school librarian in one-to-one initiatives indicates that leaders may be missing out on an important resource to support technology integration.

Leadership practices have a substantial impact on the effectiveness of one-to-one computing (Dexter & Richardson, 2020; Richardson & Sterrett, 2018). If leaders are not including librarians in their practices to leverage the knowledge, skills, and services of school librarians, or if they are, but it is not explored in the current research, then this topic deserves more attention. This research study aims to fill the gap in the literature by examining the practices of school leaders that empower school librarians to support their one-to-one computing program. The following research question guided this study:

RQ: What practices are used by school leaders in a large district to support school librarians as leaders in their one-to-one computing initiative?

This study builds off prior research where I identified valued knowledge and skills of school librarians in a district that was nationally recognized for its quality library program (Author, 2022). In that study, I noticed how the leadership practices supported the school library program in their one-to-one computing initiative and wanted to explore that concept more systematically. To accomplish this, my study is informed by the

Unified Model of Effective Leader Practices, a conceptual, evidence-based framework on leaders practices for student achievement. The model was developed by combining common practices across three existing published frameworks from noted scholars, Leithwood's (2012) *Ontario Leadership Framework*; Murphy, Elliot, Goldring, and Potter's (2006) *Learning-Centered Leadership Framework*; and Sebring, Allensworth, Bryk, Easton, and Luppescu's (2006) *The Essential Supports Framework*.

The Unified Model of Effective Leader Practices (Unified Model) has five broad domains: a) establishing and conveying the vision, b) building professional capacity, c) facilitating a high-quality learning experience for students, d) creating a supportive organization for learning, and e) connecting with external partners. The domains and dimensions (i.e., subcategories of practice necessary for implementation) are indicated in Table 1. Although the conceptual framework is situated around leading and learning, Richardson and Sterrett (2018) argue that it is "highly influenced by changes brought on by the innovative use of digital technologies (p. 592). For this reason, I am using it to systematically identify effective leader practices that leverage school librarians in their shift to one-to-one computing.

Table 1

Domains and dimensions of the Unified Model of Effective Leader Practices

Domain 1: Establishing and Conveying the Vision
Creating, articulating, and stewarding shared mission and vision
Implementing vision by setting goals and performance expectations
Modeling aspirational and ethical practices
Communicating broadly the state of the vision
Promoting the use of data for continual improvement
Tending to external accountability
Domain 2: Building Professional Capacity
Selecting the right fit

Providing individualized consideration
Building trusting relationships
Providing opportunities to learn for whole faculty to include leader(s)
Supporting, buffering, and recognizing staff
Engendering responsibility for promoting learning
Creating communities of practice
Domain 3: Facilitating a high-quality learning experience for students
Maintaining safety and orderliness
Personalizing the environment to reflect students' backgrounds
Developing and monitoring curricular program
Developing and monitoring instructional program
Developing and monitoring assessment program
Domain 4: Creating a supportive organization for learning
Acquiring and allocating resources strategically for mission and vision
Considering context to maximize organizational functioning
Building collaborative processes for decision making
Sharing and distributing leadership
Tending to and building on diversity
Maintaining ambitious and high expectations and standards
Strengthening and optimizing school culture
Domain 5: Connecting with external partners
Building productive relationships with families and external partners in the community
Engaging families and community in collaborative processes to strengthen student learning
Anchoring schools in the community

Literature Review

In this literature review, I argue that school librarians have expertise valuable to one-to-one programs, but their contributions have been minimally addressed in the scholarly research on this topic. I then discuss literature on leader practices around school librarians and technology integration.

It is generally agreed that school librarians have expertise in information literacy, digital citizenship instruction, and collection development. Information literacy, or what is commonly referred to as research skills, is the ability to determine what information is needed, critically evaluate information and its sources, incorporate selected information

into one's knowledge base, use information effectively to accomplish a specific purpose, and understand the economic, legal, and social issues surrounding the use of information (Sample, 2020). Since students have increased access to the Internet in one-to-one programs, online research is one of the top activities that students engage in (Harper & Milman, 2016; Islam & Grönlund, 2016; Kennedy et al., 2016; Zheng et al., 2016).

With students' increased ability to conduct online research, scholars have reported that students' information literacy skills improved (Islam & Grönlund, 2016). Other scholars reported that students' skills in conducting effective searches on the internet were weak (Ross, 2020). Even though students may gain skills over time, research suggests that classroom teachers spend little time teaching or assessing information literacy skills (McKeever et al., 2017). Teachers may not even view school librarians as instructional partners in information literacy (McKeever et al., 2017). Since teaching information literacy skills is a core content area of school librarians (Merga, 2020), it is surprising that research studies on one-to-one computing that discuss online research skills do not mention their role or potential role.

In one-to-one studies, teachers have expressed downsides to students' increased ability to access the internet in a one-to-one computing school. They are concerned students may access inappropriate content, use computers for unethical reasons, and engage in anti-social behaviors such as cyberbullying (Islam & Grönlund, 2016; Zheng et al., 2016). These behaviors are addressed in digital citizenship instruction, "the continuously developing norms of appropriate, responsible, and empowered technology use" (Ribble, 2017, para 1) and are an important aspect to

successful learning in a digital environment (ISTE, 2016). In a state that mandated digital citizenship instruction, two thirds of the respondents indicated that digital citizenship instruction should be a collaborative responsibility of both school librarians and classroom teachers, yet the majority was done by school librarians independently (Phillips & Lee, 2019). School librarians are key educators in teaching digital citizenship to support technology enabled learning, yet research outside of the school library field on one-to-one computing has largely omitted it.

The information literacy skills of teachers in one-to-one computing programs have also been explored. Even though online research skills such as gathering, organizing, and categorizing digital content were identified as desired competencies of a one-to-one device educator (Parrish & Savera, 2020), teachers reported a lack of confidence in their own skills to find and evaluate quality information online (Kennedy et al., 2016). Considering the urgent need for educators to be able to locate, access and evaluate information in today's world of misinformation and information overload, online research skills should be a priority. The school librarians' role as a facilitator to support these skills is a natural fit but there is little evidence of research on it outside of the library field.

Most of the studies on one-to-one computing suggest that teacher professional development is a common challenge for successful technology integration. A common solution is for leaders to create school-based positions to support technology integration (Dexter & Richardson, 2020). This practice led to the number of "instructional coordinator" positions in the United States to double from 39,000 in 2000 to 87,000 in 2015 (Lance, 2018). Research in the school library field indicates school librarians have

the qualifications to be technology specialists (Johnston, 2012; Wine, 2016) and some administrators do perceive them in technology roles. In a study from the library field, almost 6 out of 10 principals desired school librarians to take the role of technology instructor and almost 5 out of 10 wanted them to be technology troubleshooters. Yet, no study from the educational technology field listed them as potential prospects for the position. One study did acknowledge that teachers requested to consult with school librarians for technology support (Dexter & Richardson, 2020), but the librarians were not formally in the role of a technology specialist.

It is generally agreed that students and teachers had greater access to digital content for learning in one-to-one computing programs (Cole & Sauers, 2018; Islam & Grönlund, 2016; Topper & Lancaster, 2013; Vu et al., 2019). However, there was scant evidence to the types of digital resources being used or how they were vetted. If 80% of middle schoolers surveyed cannot tell the difference between sponsored content (ads) and a news article (Stanford, 2016), and teachers lack confidence and skills in evaluating sources (Kennedy et al., 2016), one wonders about the quality and appropriateness of the content they are using and how it is being curated for equitable access. The expertise of school librarians could improve this situation.

Digital collections are an integral component of curriculum and teaching in one-to-one schools and school librarians are trained in collection management. These skills include analyzing user needs; mapping digital collections to content area; and developing policies and strategies to create, procure, and evaluate the resources (Hasibuan et al., 2023); clearly a more complex endeavor than the literature infers. Furthermore, Ingram & Grönlund (2016) recommend that leaders should support a

localized digital library developed, maintained, and quality controlled in a uniform way and school librarians have the expertise to do that. This point introduces the concept of effective leader practices in technology integration which will be explored next.

There is a growing body of research on educational technology leadership. The findings range from principals feeling unprepared to lead technology initiatives (Esplin et al., 2018), to how the discussions of technology award winning superintendents' have evolved from implementation issues to practices that support teaching and learning in a digital setting (Richardson & Sterrett, 2018). Dexter and Richardson (2020) contributed to the field by using the Unified Model of Effective Leader Practices (the model I use in this study), to conduct a literature review identifying leader practices involving the intersection of teachers and technology in K-12 schools. Building professional capacity and addressing issues of access to resources were prevalent findings.

Research in the school library field has identified that principals' support of school librarians is a key capacity building strategy for them to take on technology leadership roles (Elbasri, 2018; Johnston, 2012; Wine, 2016). Research from the educational technology field, however, does not mention building the capacity of school librarians. When principals were asked to identify who they considered were partners in their one-to-one initiatives, they listed teachers, the technology department, and curriculum and instruction staff, but not school librarians (Pautz & Sadera, 2017). Even administrators who understood that school librarians were actively engaged with technology in their practice, rarely mentioned the role of the school librarian in the integration of technology (Harland et al., 2021).

When the COVID-19 pandemic hit, districts were forced to provide devices to students for remote learning. This shift created the opportunity for school librarians to informally insert themselves into school structures that supported one-to-one distance learning (Wake et al., 2022). For example, school librarians provided technical assistance to students and families, access to online learning resources, and trained teachers for the online learning environment. They provided research project assistance and added ebooks and other digital resources and tools for the school community to access. Despite these integral services, leader practices minimally involved school librarians in the planning and implementation of online teaching and learning (Wake et al., 2022). School librarians perceived the shift to remote learning as a missed opportunity for administrators to engage in practices that leveraged the unique knowledge and skills of school librarians (Wake et al., 2022).

Significance of the Study

Although research from the field of school librarianship has addressed the relevancy of school librarians in technology initiatives, research from the educational technology field has largely ignored their role. Using the Unified Model of Effective Leader Practices, this study will explore leader practices that address school librarians and libraries in a large district's shift to one-to-one computing. The findings from this study will shed insights to both the school library field and educational technology field on ways school leaders can empower school librarians as critical partners in the support and success of one-to-one programs.

Methods

This study uses the single case study method. Case studies are “used to understand a real-life phenomenon in depth” (Yin, 2009, p. 18), The use of a single case is warranted when the case is unique, such as an exemplar (Yin, 2009). This case was selected as an exemplar because the district won the prestigious American Association of School Librarians School Library Media Program of the Year award during their shift to the one-to-one initiative. The award goes to a school or district library program that recognizes “school libraries as a unique and essential part of their learning community” (AASL, 2023). Even though case studies are not generalizable, an exemplary case study provides an opportunity to learn what is working for them (Yin, 2009).

Case Description

Barrington County Public Schools (BCPS), a pseudonym, is a large suburban district in the Northeast with a diverse student population. At the time of the study, approximately 115,000 students were enrolled with a demographic profile of 64.1% non-white, including 39.5% Black or African American. Thirteen percent received special education services, 48.7 % were eligible for free and reduced-price meals, and 7.1% were English learners who came from 114 different countries representing 105 different languages.

When this study took place, the district was in the process of transitioning to a one-to-one computing program in all 175 schools. New leadership had spearheaded the program with a goal to bring student teaching and learning to the 21st century. They focused on improving teacher pedagogy to be more student-centered; providing quality,

easily accessible digital resources; and creating an environment conducive to digital learning.

The transition to the one-to-one device program was led by the technology department, a team of four technology experts with education backgrounds. This team oversaw district digital resources and strategies to build staff capacity to effectively teach in a one-to-one setting. This district had a library program leadership staff which was housed within the technology department and worked closely with them. The Library Program Staff consisted of four certified school librarians including the coordinator, and a fifth member, a technology specialist and former classroom teacher. Every school in the district had full-time certified school librarians and some of the larger schools had an additional part time certified school librarian. The school library program was clearly a valued resource.

Participants

After obtaining IRB and school committee approval, I consulted with the coordinator of the library program staff and invited 28 participants through email who represented a range of perspectives with high knowledge of the library program (See Table 2). Triangulating data from diverse viewpoints helps to ensure the quality and credibility of qualitative inquiry (Patton, 2002). I had no relationship with the district or any of the participants prior to the study.

Table 2

Participant List

Position and description	# of participants	M	F

Assistant Superintendent– works with teachers and building level administrators to run schools.	1	0	1
District Curriculum Leader – oversees coordinating the ELA curriculum, providing support, and promoting collaboration	1	0	1
Technology Department –oversees and integrates technology and digital resources for 21st century learning	3	3	0
Library Media Program Staff – provides leadership for the SL program across the district	5	1	4
High School Principal (Grades 9-12) – oversees higher-level operations in a school	1	1	0
Middle School Principal (Grades 6-8) - oversees higher-level operations in a school	1	0	1
High School Librarian (Grades 9-12)	1	0	1
Middle School Librarian (Grades 6-8)	1	1	0
School Librarian Group			
Elementary	4	0	4
Middle	3	2	1
High	2	0	2
High School Teachers (Grades 9-12)	2	1	1
Public Librarians – partners in resource sharing	2	0	2
Director of local School Library Educator Preparation Program	1	1	0
	28	10	18

Data Collection

Data was collected from three sources: eight individual and six group interviews; notes and photos from on-site observations at an elementary, middle, and high school

library; and relevant documents available on the district website such as the district's strategic plan.

In case studies, interviews provide the most important information (Yin, 2009) and were the major source of information in this study. The interview questions were designed with guiding questions that followed the line of inquiry for my study, but I also asked conversational questions to deepen my understanding (Yin, 2009). The guiding interview questions were similar across groups, but each group also had questions specific to their context. For example, only teachers were asked to describe any lessons or projects they had done collaboratively with the school librarian. See Appendix A for interview questions. The interviews were audio recorded and transcribed verbatim for data analysis.

To mitigate any social desirability bias in their responses, I assured participants the interviews were confidential and brought up questions in a conversational style that invited them to talk about challenges as well as successes. I also took the stance of empathetic neutrality to help them feel like they could be honest with their responses (Patton, 2002).

Data Analysis

Analysis was conducted in a multi-step process. To help make sense of the large amount of qualitative data, step one was an deductive analysis to reveal themes (Patton, 2002). I read the transcripts multiple times and using the constant comparative method (Patton, 2002), I made notes and color coded for common themes, revising as I gained a sense of the meanings. The themes revealed were leadership; instruction; curriculum; collaboration; knowledge, skills, and dispositions; and professional learning.

In the second step, I used the constant comparative method to deductively code the data in terms of the domains of the Unified Model (Patton, 2002). I then conducted another level of analysis to deductively code the data to the dimensions within the domains which provided more granular detail. Lastly, I identified the most salient responses in the data that addressed a Unified Model dimension and used those to write the narrative.

To strengthen the validity of my analysis in step one, I used feedback from a graduate student who did the transcriptions and was in the school library educator preparation program where I work to inform my thematic coding decisions. In step two, I shared my findings for feedback from a colleague whose area of expertise was in leadership. I also used my previous experience as a high school librarian in the planning and implementation of a one-to-one computing program to help me make sense of the findings, a common process analysts use in search of meaning in qualitative data (Patton, 2002).

Results

The findings with the most salient insights between leader practices and librarians are reported and organized by the domains and dimensions of the Unified Model.

Domain One - Establishing and Conveying the Vision

Leaders not only set goals, they engage in subsequent activities to achieve that purpose. The dimensions of this domain describe the steps that need to be taken to create and implement the vision (Hitt & Tucker, 2016). In the context of the library and one-to-one program, the most salient findings in this domain are described:

Communicating Broadly and Articulating the Shared Mission and Vision and Setting Goals

The Assistant superintendent articulated the district's vision in their shift to 21st learning was three-fold: a student-centered learning pedagogy, access to quality digital resources, and environments conducive to digital learning. The Assistant Superintendent enthusiastically described how the library impacted that vision:

> I think that the role of just library programs and library media specialists were so instrumental because they were that driving force backbone between the old and the new, right?... I would say those two things really sort of launched, for us, this vision and framework around how we were going to move our teaching and learning to be more student centered which is huge for what we were doing in terms of pedagogy and the role of the library media specialist because we needed kids to become not just consumers, but producers and directors of their learning and facilitators of their learning.

The Technology Department reinforced the library's role in connection to their vision of 21st century learning:

> That idea of shifting from there is a room in the building full of books to touching every child in the school, which is that transformation that [colleague's name] is talking about where we've moved forward from traditional librarian to a library media specialist has a multi-faceted role in both print and digital resources and working with every child for that twenty-first century skill.

When articulating their vision for 21st learning, school leaders referred to the library as "the central hub of the school" and "the most powerful classroom in the school." The Technology Department acknowledged that they were fortunate that their leadership "firmly believes that the library space in a schoolhouse can be the heart and soul of the school building." They backed up their beliefs of the importance of school libraries by setting goals to build new libraries and renovate existing ones to be more effective spaces for a digital learning environment.

Domain One Summary. The most notable responses in the data set addressed the first dimension by articulating how important the library and library program were in creating and achieving their vision of 21st learning: student centered pedagogy, robust digital resources, and an environment supportive of digital learning.

Domain Two - Building Professional Capacity

Effective leaders provide professional learning for them and others. The dimensions include teacher learning, relationship building, and selecting the right people for the job (Hitt & Tucker, 2016). In the context of the library and one-to-one program, the most salient findings in this domain are described:

Providing Opportunities to Learn for Whole Faculty, Including Leaders(s)

Leaders viewed school librarians as technology specialists who train faculty in moving to one-to-one computing. For example, the HS Principal described how the school librarian “asked for a tech and ten quick PD session during faculty meetings” which he gave her. He also described how she acts as a technology specialist by providing more formal PD sessions and “one on one training for faculty in integrating technology…so they won't feel pressured or nervous or frustrated when the technology doesn't work, or they get to a certain point where they don't know where to go next."

The Library Program Staff was involved with district wide teacher training on digital resources. The ELA Coordinator shared that the Library Program staff trains their curriculum writers each year. “They come in and they train – everything from where the resources are to using the databases to copyright.” There was also a system to scale up training. The Library Program Staff would present at ELA department chair meetings and the department chairs would take it back to the rest of the 850 teachers.

Leaders provided district professional development on student centered learning and school librarians attended alongside of classroom teachers. The Library Program Staff provided training specifically for school librarians to support their success in a digital learning environment. They delivered training through formal sessions, just in time advice, and individual mentoring over a sustained period. These practices helped strengthen the library program which would in turn benefited the teachers and students in the one-to-one environment.

The Library Program Staff also engaged in their own professional learning. The coordinator attended workshops and conferences to keep up with trends in the field and would bring back what she learned. A recent topic was on Open Educational Resources, an opportunity to expand access to no cost, quality digital resources to support the one-to-one program.

Building Trusting Relationships

Across the interviews, people described relationships built on trust between the School Library Program Staff and others. Relationships were built by working together on curricular projects, co-teaching, and through professional training. The most notable relationship was between the Library Program Staff and the Technology Department, two key leadership teams in the transition to one-to-one computing. They had been working together for five years and their areas of expertise complimented each other. The Technology Department shared examples of how they worked together in symbiosis to improve the one-to-one program. Here is one:

> It's been critical for us…to be able to have a centralized communication channel [Library Program Staff] where we can reach out to all our library media specialists, share with them what's happening at a systemic level, and also get

their feedback on what it looks like in practical application in individual schoolhouses.

Selecting the Right Fit

Leaders staffed positions across the district with people who had the best skills for the job to support to one-to-one computing. For example, members in the Technology Department had education backgrounds so instead of working in a silo, they worked in synergy with teachers and librarians.

The coordinator of the Library Program Staff was an excellent fit for the district library leadership position. She was a former classroom teacher and school librarian and had deep knowledge of education, technology, and the school library field. She had strong communication, critical thinking, and people skills. She conveyed key leadership dispositions such as caring and a strong work ethic. People across all interview groups spoke highly of her and acknowledged her integral role in building the capacity of the school library program to advance the one-to-one program.

Other examples of this practice were evidenced at the building level. The HS Principal took note of the HS Librarian's skills as a "digital diva" and "champion of change" and appointed her to the instructional leadership team for the transition to one-to-one. The MS Principal hired a librarian known for his creativity and ability to think outside the box to lead the redesign of the library space to better meet the changing needs of students and staff in a digital learning environment.

In addition, the coordinator of the Library Program Staff ensured new hires were prepared and motivated to be leaders in their schools. The effect was so positive that according to the Technology Department, it "changed many buildings' perspective on

that work.” Principals could experience how qualified school librarians could lead change in technology initiatives.

Domain Two Summary. The most salient insights for this domain addressed three dimensions: providing opportunities for professional development, building trusting relationships, and selecting the right person for the job. Professional development was given and received by school librarians. The trusting relationship between the Technology Department and the Library Program Staff was critical in advancing the one-to-one program. Lastly, the capacity of school librarians and other leaders increased when leaders matched their strengths with positions that could positively impact 21st learning.

Domain Three - Facilitating a High-Quality Learning Experience for Students

Leaders need to maintain their understanding of curriculum, instruction, and assessment to be effective (Hitt & Tucker, 2016). In the context of the library and one-to-one program, the most salient findings in this domain are described:

Developing and Monitoring Curricular Program

Members of the Library Program Staff were appointed to curriculum committees to assist in the development of it. A key impact was their ability to embed digital resources into the curriculum and exponentially increased their use. The ELA Coordinator explained how they worked with the Library Program Staff to integrate digital resources such as ebooks and databases into the curriculum:

> So, we have so many resources to pull together and we work together, and they build us really great meaningful thing and we embed it in the curriculum… So, what happens is all these great resources get used if we write them in our curriculum.

The Library Program Staff also led the development of digital content to support teachers and students in one-to-one computing. They created virtual modules on the research process, (i.e., locating, evaluating, and using information), which were embedded into the curriculum and accessible to students 24/7. They also developed Slam Dunks, short inquiry modules where students develop an inquiry question, research a few minutes, and then share their findings. Slam Dunks were embedded into curriculum units to support learning objectives, used as enrichment activities, and for personal exploration.

Developing and Monitoring Instructional Program

Leaders supported instructional partnerships between school librarians and teachers to support students' digital literacy skills. The ELA Coordinator pointed out, "We worked a lot with them [librarians] through digital literacy. It's a natural fit when we are teaching our kids, we have the one-to-one device initiative." The Assistant Superintendent reinforced, "even in some of our research modules that are designed for classroom teachers in content areas, you have to work with your library media specialist, there's no other way to do it."

Across the interviews, school leaders valued the content area expertise and instructional role of school librarians to support one-to-one computing. The Assistant Superintendent expressed:

> They should be the experts in the building in twenty-first century literacy. So, all of this, so when you think about not just media, information, and technology skills but when you think about helping kids learn how they learn, helping kids learn what it means to be innovative, helping kids learn those critical soft skills of communication and collaboration and creativity and problem solving. To me, they should be the experts in the building in that because their discipline naturally lends itself to being able to foster that.

School librarians also led the teaching of digital citizenship, an essential component for student success in a one-to-one computing environment. The MS Principal pointed out:

> I think it [one-to-one device] has changed the role [of the librarian] in the sense that I think it's even more important than ever that we get those kids and make them understand how to use the device for good reasons and all it can bring to you.

Domain Three Summary. The responses highlighted from the data set indicate leaders understood how school librarians could positively impact the development of the curriculum and instructional programs to better support one-to-one computing. Common strategies were to create virtual models, embed digital resources into the curriculum, and require instructional partnerships between teaches and school librarians.

Domain Four - Creating a Supportive Organization for Learning

Leaders demonstrate a concern for people in the organization by building a supportive environment and culture. The practices in these dimensions benefit both individuals and the organization (Hitt & Tucker, 2016). In the context of the library and one-to-one program, the most salient findings in this domain are described:

Acquiring and Allocating Resources Strategically for Mission and Vision

The Technology Department and Library Program Staff partnered on 1:1 computing projects that prioritized the acquisition of quality digital resources and equitable allocation across the district. One project, the “digital ecosystem,” was a centralized collection of district resources that included library resources. The Technology Department also developed a single sign on system which allowed students

and staff access to the same resources no matter what school they were in and helped streamline the login in process so students could get to the learning quicker.

The Library Program Staff used their collection management expertise to evaluate and procure digital resources. This practice helped make the district's vision of equitable access to quality digital resources a reality. For example, the Assistant Superintendent described how the Library Program Staff worked with the state library consortium to "have all of these amazing print and digital resources that supported this pedagogical shift we were trying to make." They elaborated: "kids now have content that they can actually read and that's a game changer…we had every teacher in elementary using PebbleGo and it wasn't just us [the librarians]." This database provides accommodations for learner differences through the translation of content into multiple languages, a high are need for the large population of English language learners in the district.

The Technology Department summarized the strategic use of school librarians in resource acquisition and allocation, "and the library media specialist has, from day one, been essential in how that's been spread to schools, how that person has worked with our classroom teachers to help them understand what resources are available."

District leaders prioritized the physical space of the library as a resource to be allocated to all schools. To better meet the changing needs of students in a digital learning environment, new libraries were being built and others were redesigned as multi-use spaces. The Assistant Superintendent stated:

> When I walk into some of our high school learning commons, there are teaching spaces, there are independent research spaces, there are collaboration spaces, they're truly designed to meet students' needs in a variety of ways which is just, I think, awesome.

The high school libraries were also equipped with video production labs to support student-centered learning and digital literacy skills. The broad plan was for all libraries to have promethean boards, new furniture that accommodated different uses, and other design features more appropriate for a one-to-one computing school.

Sharing and Distributing Leadership

There were several examples of distributed leadership, and creating a library leadership team was most notable. District leaders funded the Library Program Staff to take a lead in supporting the transition to one-to-one. The Assistant Superintendent explained:

> She [Library Program Coordinator] was given the staffing and the budget to be able to build a team centrally that could support all of that…letting teachers know that these exist and how to access them…and to use all of these resources with students from a teaching standpoint in a meaningful way.

Domain Four Summary. The responses highlighted from the data set provide insight into ways the Library Program Staff and Technology Department led the acquisition and allocation of digital resources to support teaching and learning in a one-to-one setting. The digital ecosystem and funding of a district library team were instrumental in ensuring resources were allocated equitably.

Domain Five Connecting with External Partners

Effective leaders make connections with parents, families, and other external stakeholders (Hitt & Tucker, 2016). In the context of the library and one-to-one program, the most salient findings in this domain are described:

Building Productive Relationships with Families and External Partners in the Community to Strengthen Student Learning

The library program staff had established relationships with other library organizations to support student learning. A partnership with the public library system included initiatives for teacher library loan cards, access to the public library databases, collaborative professional development, and literacy programs such as summer reading and author visits. In the transition to the one-to-one program, Student Accounts was a new initiative. The BCPS and public library technology departments collaboratively created a back-office system so a student's school ID card could also be used as their public library card. The public librarian described, "They [students] have an account where they can borrow up to five items, fine free, and they also have access to all of our online resources. So, this was to try to break down barriers you know, promote access." The BCPS Technology Department also installed district Wi-Fi in all the branches to make it available to the school community. Participants acknowledged the effort it took to implement Student Accounts and expressed their pride in accomplishing it.

The Library Program Staff also facilitated a partnership with the local library media educator preparation program. Members of the Library Program Staff were part-time instructors, and most students in the program were BCPS teachers who wanted to become certified school librarians. The Library Program Staff provided input on the curricular content to ensure it met the district's needs and BCPS subsidized the tuition. The Technology Department pointed out: "it's been a great partnership, and that partnership has allowed us to continue to have this pipeline of qualified candidates who are able to come into the position ready to go." With a staff of 175 librarians, some turnover is expected every year, and the partnership helped overcome this challenge.

Domain Five Summary. The most salient responses addressed the dimension of building productive relationships with families and external partners in the community to strengthen student learning. With support from the Technology Department, the library program coordinator led the development of partnerships between BCPS and other library organizations to increase access to academic resources and to ensure effective preparation of future school librarians to work in the district.

Discussion

This case study used the Unified Model of Effective Leader Practices as a framework to explore the intersection of leader practices, school librarians, and technology in their shift to one-to-one computing. My interpretation of the findings follows.

I discovered leaders who articulated a vision of the school library as the central hub of the school and school librarians as models for student centered learning may have an advantage in implementing a successful one-to-one program. This practice is from Domain 1, creating and articulating a vision. One wonders if some of the challenges of technology initiatives documented in the research (Islam & Grönlund, 2016; Topper & Lancaster, 2013; Zheng et al., 2016) could be overcome by leaders who understood and believed in the value of school librarians in technology initiatives.

I also discovered that the acquisition of digital content for robust one-to-one computing programs is more complex and more important than has been studied. This finding falls under Domain 4, creating a supportive organization for learning. Digital content is not simply information accessed on the internet by students and teachers as described in the literature on one-to-one computing (Islam & Grönlund, 2016; Zheng et

al., 2016). This finding confirms research that the expertise of school librarians to vet, create, and acquire materials is critical in developing robust resources to support digital learning (Hasibuan et al., 2023). This finding also provides an example of one way to develop a localized library of quality materials as recommended by Islam and Grönlund (2016).

In connection with the importance of school librarians and digital resources, I found the strong collaboration between the Library Program Staff and the Technology Department significant, particularly in projects focusing on the accessibility of quality digital resources. This finding connects to the relationship building dimension of Domain 2, professional capacity building, and confirms research on the enablers and prohibitors for school librarians as technology leaders (Johnston, 2012). Educational technology research suggests that capacity building of teachers is critical (Dexter & Richardson, 2020) but does not specifically mention how leaders can leverage the expertise of school librarians to make resources more equitably accessible, a fundamental purpose of one-to-one computing. Hopefully the findings from this study will bring positive attention to the potential for school librarians to be partners and leaders in one-to-one initiatives, especially around digital resources.

I also noted how leaders emphasized the development of curriculum embedded with vetted digital resources and instructional collaboration between teachers and school librarians. These practices align to Domain 3, facilitating a high-quality learning experience. Although research indicates increased collaboration amongst teachers can have a positive impact on teaching in one-to-one programs (Islam & Grönlund, 2016),

this study adds to the knowledge base on the benefits of collaboration between teachers and school librarians.

Lastly, I learned that the leader practice of distributing leadership to a library leadership team can have an exponential impact in attaining a vision for a one-to-one program. This finding connects to Domain 4 and confirms research that school librarians in technology leader roles can provide integral services to support digital learning (Wake et al., 2022; Weeks et al., 2017)). Moreover, this finding is consistent with a large body of research on how important leadership supports are for technology integration. This study examined a large district with a school library leadership team of five, but I propose that districts of all sizes can benefit by hiring staff appropriate to their enrollment for library leadership positions.

This study is significant because it provides insights on the intersections of leader practices, school librarians, and technology. The findings provide explicit examples of leader practices that current technology leaders in the field can learn from, and if manifested, could potentially strengthen the impact of one-to-one computing programs. Since there is a lack of awareness on the value of school librarians in one-to-one programs, professional developers and administrator preparation programs can use the findings to update their course content and curriculum to include this topic. The findings also inform the school library field by illustrating ways they can communicate their value to leaders, advocate for themselves as leaders, and gain insight into effective leader practices they, themselves, could develop.

A limitation of this study could be the use of a conceptual framework consisting of five separate domains. Aligning the findings to a single domain may not convey the

synergistic effect between practices but can, however, bring coherence to the findings (Dexter & Richardson, 2020). Another limitation of this study is possible response bias because participants were selected based on their knowledge and positive perspective of the library program. The goal of this research was to identify effective leader practices rather than evaluate them, so this limitation may not be as significant.

Conclusion

This exemplary case study explored effective leader practices involving the often-overlooked role of the school librarian in one-to-one computing programs. The findings revealed that effective leader practices included: incorporating the library in the vision, building the professional capacity of school librarians, including school librarians in curriculum and instruction development, establishing a district library leadership team, and leveraging their expertise to procure and equitably allocate quality resources to support a digital learning environment. Future research on the intersection of leader practices, school librarians, and technology in different sized districts is recommended. Scholars, practitioners, professional developers, and administrator preparation programs may benefit from the findings to raise awareness and improve leaders' understanding of the valuable role school librarians can play in one-to-one computing.

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Appendix A. Semi-structured Interview Questions by Group

Technology Department

1. Can each of you introduce yourselves by telling me your title, how long you have worked in this job, and how you got to this point in your career.
2. Tell me about the Department of Innovative Learning / Library Media Program
    a. Key initiatives supported
        i. Quality and diverse Resource collections
        ii. Technology to manage school resources
        iii. 24 hr access to resources
        iv. Expand educational outreach to students and families is safe and ethical use of information technologies
3. How has BCPS rebranded the role of the school librarian?
4. How have libraries/librarians helped fulfill Blueprint 2.0?
5. What knowledge, skills, and dispositions do school librarians who exemplify excellence have?
6. What kinds of activities are students engaged in at the library?
    a. What do school librarians teach? – curriculum?
    b. How do school librarians support literacy?
    c. STEAM/Maker activities
    d. Educational Technology
7. How has the physical space of the library changed?
8. Describe how librarians collaborate/partner with teachers, organizations, and other stakeholders.
9. What documents can you direct me to or share with me (curriculum, Instructional Digital conversion, Lesson Planning Resources, schedule of librarians, and training, other documents that show role in Blueprint 2.0.
10. In what ways has the school librarian been a leader and advocate in the school?
11. What do you value most about the school library space, program and librarian?
12. How has the district supported school library programs and school librarians?
13. How have you responded if any librarians were resistant to change?
14. Why do you think BCPS won the AASL School Library of the Year award in 2017?

Administrators

1. Please tell me about yourself. What is your background? How long have you been in this position?

2. Why do you think BCPS won the AASL School Library of the Year award in 2017?
3. How has the school library media program been instrumental in reaching goals of Blueprint 2.0? Were school libraries/librarians considered key players in the development of it If so, how? Focus on:
    a. Facility upgrades
    b. Access to 21st skills and world class curriculum
    c. Innovative approaches to teaching and learning – Instructional Digital Conversion – OER? Process to acquire and integrate new tech practices? Training of others?

    d. Student performance data
    e. Student safety i.e. antibully
4. How has BCPS rebranded the role of the school librarian?
5. What do you think are important knowledge, skills, and dispositions for effective school librarians to have?
6. How do school library media specialists **impact student learning**?
    a. Literacy, media literacy, STEAM, information literacy, educational technology, digital citizenship
7. How has the district supported school library programs and school librarians? PD?
    a. Describe the **library resources** that you think are important.
8. How has the physical space of the library changed?
9. What do you **value most** about the school library program and librarian? What would you tell a colleague who was thinking of eliminating school library media positions? (Why do you think BCPS was awarded the AASL NSLMPY Award?
10. What advice would you give to a school library media educator preparation program to best prepare students to be effective school library media specialists?

Teachers

1. What do you see is valuable, innovative about the school library program?
2. How has BCPS rebranded the role of the school librarian?
3. What do you think are important knowledge, skills, and dispositions for effective school librarians to have?
4. How do school library media specialists **impact student learning**?
    a. Literacy, media literacy, STEAM, information literacy, educational technology, digital citizenship

5. How do SLMS support you?
6. How do SLMS support your students?
7. What kinds of collaborative projects have you done with SLMS?
8. Do you perceive SLMS as teachers, leaders, instructional partners, information specialists, or program administrators?
9. Why do you think BCPS won the AASL School Library of the Year award in 2017?

School Librarian Group

1. How has BCPS rebranded the role of the school librarian?
2. What do you think are important knowledge, skills, and dispositions for effective school librarians to have?
3. Continuous learning – It's apparent that you are always learning. What does this look like for you? How to do stay relevant and experienced with technology tools for teaching?
4. I've read that you are teachers first. What does this mean to you? How is this realized in your practice?
    a. Creating a learner centered environment
    b. Equitable access to technology
    c. Rethinking use of space, furnishings, and resources,
    d. Input from students and staff
    e. Inquiry learning

5. What are the lesson planning resources that to align library instruction with AASL standards for the 21st C learner?
6. **Dispositions** of SLMS at BCPS – how do you motivate SLMS, how about those who resist?
    a. Willingness to adopt new practices
    b. Re-imagine physical space
    c. Re-define program
7. What kind of leaders are you? Advocates?
8. Why do you think you are valued here at BCPS?
9. What advice would you give me to better prepare students to be SLMS?

Public Librarians

1. Introduce yourselves by telling what your job, your background, and how long you have been collaborating with BCPS. What is your relationship with the BCPS and the library program?

2. What is the SAIL team and how have you partnered with the BCPS and their school library media specialists. How did it come about? What are the goals? How have you accomplished them? How have you measured the impact?
3. Why do you think BCPS won the AASL School Library of the Year award in 2017?
4. How has BCPS rebranded the role of the school librarian?
5. What knowledge, skills, and dispositions do school librarians who exemplify excellence have?
6. How do you as a team support literacies?
7. How have school librarians been leaders? Advocates?
8. How do you as a team provide quality and diverse resource collections?
9. What kinds of activities are students engaged in at the library? Literacy, media literacy, STEAM, information literacy, educational technology, digital citizenship
10. What advice would you give library schools preparing school librarians and public librarians about collaboration?