

Hiring Three Technology Coordinators

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Literature Review

Technology in education has evolved from overhead projectors to handheld tablet PC's to current emerging technologies such as drones being utilized in classrooms (Carnahan, Zieger & Crowley, 2016). Despite this evolution in technology, Cuban and Jandric (2015) predicts that in the next quarter century, education will still be age and grade based, and will take place in brick and mortar schools. He also predicts that 75% of classroom teachers will use some sort of device in instruction daily (Cuban & Jandric, 2015, p. 436). Between software and hardware the educational technologies of today include a wide range of devices, applications and cloud based tools such as Chromebooks, iPad, smartphones, and educational applications which creates the need for a technology coordinator to help teachers use technology effectively (Delgado, Wardlow, McKnight, & O'Malley, 2015).

Technology has not only contributed to vast improvements in teaching, but it has empowered teachers to enhance student learning. Teachers and students are now given the opportunity to interchange the way they teach and learn. In fact, educational technology is viewed as being “associated with collaborative, authentic and constructivist student centered learning” (McDonagh, & McGarr, 2015, p. 57). As technology in education quickly evolves and is handled on a daily basis in education, it has become evident that administrators in school buildings need additional support in managing any new technology in a school environment, hence the need for a technology coordinator. This is no surprise that assistance is needing in this everyday changing field when even the field itself is difficult to define. According to Kinshuk, Huang, Sampson, and Chen (2013) in 2013 defining educational technology is difficult, but researchers and practitioners have used this term to mean the use of different technologies to help facilitate educational processes. Educational technology if it was to be defined in a broad

sense would encompass both hardware and software that is used to support any educational goal (Delgado, Wardlow, McKnight, & O'Malley, 2015).

As stated by Frazier (2012) a technology coordinator plays a vital role in a school's district and holds a range of responsibilities from infrastructure to budgeting to ensure all members, including teachers, students, administrators, and staff of a school's district are effectively using the technology resources. Technology coordinators are "leaders of educational technology innovation" (Lin, F. & Chiou, G., 2010). According to Sugar and Hollomen (2009), several studies that were analyzed outlined four main themes in regard to responsibilities expected for technology coordinators that include, Instruction, Technical, Analysis, and Leadership.

In order to efficiently help integrate technology in the classroom, a technology coordinator must become an instructional expert that will provide teachers with advice on how to incorporate technology into a particular lesson (Sugar & Hollomen, 2009). As reported by Twomey, Shamburg, and Zieger (2006) technology coordinators are able to use technology to maximize student learning by applying strategies and methods executed from the curriculum plans. A technology coordinator must be able to shift their role to a technical expert in order to maintain all technology equipment, support with networking, and purchase any necessary hardware needed. Effective coordinators must also be able to transform to become analytical experts. They must not only instruct teachers and maintain technology equipment but be prepared to frequently assess and analyze the equipment and the implementation of technology to make any necessary changes in the technology plan of the designated school district. As Frazier (2012) has also articulated, that the technology coordinator must be able to provide

professional development, help communicate the vision of the school district's technology plan, and also plan for short term and long term changes regarding how technology will be used.

Technology utilization in today's classrooms is imperative to help students gain the required skills to be successful in the 21st century (Delgado, Wardlow, McKnight, & O'Malley, 2015). Teachers may not have the skills or the time to incorporate the technology. Since there is a plethora of technological tools and instructional strategies, teachers need to have the abilities and skills to transform their teaching to incorporate these items effectively. Educational technology coordinators can assist with this task (Delgado, Wardlow, McKnight, & O'Malley, 2015).

In addition to helping teachers integrate technology into their classrooms, technology coordinators have to be able to problem-solve and facilitate. Sugar & Hollomen (2009) conducted a mixed methods study in which they investigated a full-time technology coordinator who works in a middle school with thirty seven teachers. The selection of this coordinator was determined because she was described as a leader by the teachers in this middle school (p. 70). They determined the two leadership characteristics that this technology coordinator had was problem-solving and facilitating. In fact it was determined that these two characteristics was the main function for this coordinator and remained part of her daily routine (p. 71).

Technology coordinators may also be responsible for discovering new ways to support teachers in mastering technology. School based technology coordinators who have a strong understanding of educational technology and pedagogy should be able to determine what professional development is needed for teachers (Wong, 2008). Glazer and Page (2006) developed their own model of professional development, called Collaborative Apprenticeship. Overseen by the technology coordinator, teachers take on the roles of novice, developing,

proficient and masters with respect to the technological techniques in the school. Master teachers have mentor roles with those who are not as proficient, and they collaborate in the development of new lessons. The technology coordinator is thus free to be proactive in offering advice with new lessons, rather than responding to inquiries from teachers. They can focus on design, rather than working to develop the lesson. In Collaborative Apprenticeship, the focus is no longer on the work product or lesson, it is on teacher learning (Glazer & Page, 2006).

Lai and Pratt (2004) used questionnaires and interviews to determine what technology coordinators and principals believe the role of technology coordinators should be based on twenty one schools and what barriers are present which prevents them from completing their duties (p. 465). Their findings discovered that the technology needs of the schools which participated in this research are determined to be different depending on who the respondent was, the principal or the technology coordinator. Principals were concerned with costs associated with technology as a barrier to the utilization of technology in the schools. However, the technology coordinators indicated that professional development was the highest factor interfering with the implementation of technology in the schools (Lai & Pratt, 2004, p. 473). In addition, the technology coordinators also indicated that the teachers in these schools lack of understanding the value that technology integration could provide for these students was also a barrier. Overall the technology coordinators seemed to be in touch with the barriers of technology integration better than the principals. In addition, Lai and Pratt's (2004) research revealed that some of the principals believed they should provide the technology vision to the technology coordinator so that they can then implement the vision (p. 473). This vision can also be incorporated into the technology curriculum.

Technology curriculum helps to build the idea that students must be digitally literate in order to be ready for our knowledge based society and helps build the idea that technology can help improve student success in learning (Vanderlinde, Van Braak, & Hermans, 2009).

Vanderlinde, Van Braak, & Hermans (2009) conducted an extensive literature review which highlights that technology coordinators may become responsible for promoting and coordinating activities that use educational technology to support teaching and learning. With these new responsibilities educational technology coordinators need leadership and management skills. Writing technology plans for school is a way in which educational technology coordinators further demonstrate leadership. Technology plans that are written for schools describe the school's actions, expectations, and goals which will be integrated into the school technology goals "to foster teaching and learning processes", meaning the instructional program, not just through providing more hardware and internet connections (Vanderlinde, Van Braak, & Hermans, 2009).

Wong (2008) utilized the findings of a larger scale study which consisted of using a cross-sectional self-administered questionnaire in the United Kingdom to identify six obstacles to effective implementation of technology in schools. Only one of the six concerned the availability of hardware for teachers. The others were human concerns: the skill gap with respect to availability of training, lack of sharing of experiences, lack of web resources, lack of technical support, lack of central direction for schools. To combat these issues, a technology coordinator is often hired (Wong, 2008). However, in a comparative study of teachers and school heads in the United Kingdom and in Hong Kong, another factor, the perception of the technology coordinator, was identified. In the UK, technology coordinators are viewed as leaders in the school, accepting the responsibility for successful implementation of technology alongside the

school head. In Hong Kong, the technology coordinator is viewed as a support staff position, and the technology implementations are somewhat less successful (Wong, 2008).

Collum (2015) conducted a qualitative research study consisting of a pre-interview survey and interviews with district technology coordinators from Alabama's public school system. Upon completion of the qualitative study Collum revealed that Alabama's school district's educational technology coordinator's job description includes six elements. These six elements all highlight the fact that the educational technology coordinator has a lot of responsibility and therefore is accountable for many things. The first element is having accountability for maintaining the technology funds. The second element is being accountable for professional development for faculty. The third element is maintaining all mandated reports and plans. The fourth element is organizing and coordinating the educational technology available across all programs. The fifth element is to maintain safety and security for the network and the school's data. The sixth element is to implement all required standards (Collum, 2015).

The International Society for Technology in Education (ISTE) has established the Technology Coordinator Issues Model (TCIM 2.0) to describe the common functions of Technology Coordinator role, regardless of what the position is called in a given district or school (Frazier, 2012). According to Frazier (2012) there are five dimensions included in this model. The first of these dimensions is teaching and learning, which encompasses all of the direct impacts of technology on teachers and students, such as evaluation of software, establishment of a digital citizenship program, and professional development. End user support, including operating a help desk, managing repair requests, and purchasing equipment, is another essential dimension of the technology coordinator's role. The coordinator is also responsible for network operations, establishing and maintaining a secure network and providing for Internet

access for users while maintaining compliance with the Children’s Internet Protection Act (CIPA), is the third dimension described in the model. Technology coordinators tend to the administrative computing needs of their school or district, including grades and records and human resources information. The fifth dimension of the technology coordinator’s role is budgeting and planning, making long-term and short-term plans for maintenance of systems, replacement of hardware, and licensing of software (Frazier, 2012).

The environment surrounding educational technology continues to evolve, and the TCIM is also evolving. A new and revised edition of Frazier’s *The Technology Coordinator’s Handbook* was recently published, which contains updated information as well as material regarding the theoretical frameworks involved in educational technology (Frazier & Herrington, 2017). Reflective of the growing importance of educational technology, ISTE has published *Standards for Technology Coaches*. This new position is charged with supporting teachers and learning, similar to the first dimension of TCIM. However, technology coaches are not responsible for the other four administrative functions of a technology coordinator (ISTE, 2017).

Walker (2015) applied the TCIM 2.0 model’s dimensions to determine if they also apply to educational technology coordinators who work in schools that support students who are diagnosed with language based learning differences. Each student population varies regarding the type and number of students with language-based learning differences, however, this case study found similarities regarding each of the six dimensions. Regarding the first dimension, teaching and learning, all the educational technology coordinators reported “that the goal of these technologies was to provide teaching support to teachers and learning support to students” (Walker, 2015, p. 298). Regarding the second dimension all educational technology coordinators reported “that the best method for end-user support was by first empowering end-users to

troubleshoot issues on their own” (Walker, 2015, p. 300). The third dimension was well covered as all educational technology coordinators reported that each school had well supported networks. The fourth dimension, administrative computing, all the educational technology coordinators all wanted “an SIS (student information system) or LMS (learning management system)” to be the tool to interpret data to help make decisions for the schools but none of these educational technology coordinators had a system that was satisfactory and “data-driven decision-making at each school was a struggle” (Walker, 2015, p. 303). The last dimension, budgeting and planning, was mostly handled by the administrative offices and not the educational technology coordinators.

In another study, Quigley (2015) worked at determining if a community of practice would be beneficial for educational technology coordinators to fulfill some of their many duties with a focus on Frazier's first dimension, teaching and learning. This study showed that educational technology coordinators do not need to have a particular background in a “common content area or specific academic credential” (Quigley, 2015, p. 75). Each district defines the role of the educational technology coordinator based on its own needs, such as the size of the district and the number of schools. These educational technology coordinators will “need access to resources to be successful in their jobs” so they can provide their support to other teachers and stakeholders regarding teaching and learning. In fact “the analyzed data identified that the information most often contributed to providing assistance with key tasks critical to job performance. Information was either in the form of access to resources or related to members sharing personal experiences” (Quigley, 2015, p. 74).

Technology Coordinator Job Description

Although technology coordinators provide leadership in technology and work with various aspects of a school district's infrastructure, they must always be prepared to wear multiple hats (Frazier, 2012). For example, at The Paulo Freire Charter School (n.d.), the educational technology coordinator is responsible for the “training, modeling, and assisting” of teachers while they integrate technology into their classrooms in order to improve their students’ achievement. In addition, educational technology coordinators have to making sure every student is able to not only meet the Common Core Standards but exceed them. The educational technology coordinator is also responsible for providing professional development which will include coordinating activities with “outside vendors, consultants and trainers” (The Paulo Freire Charter School, n.d.). On average according to payscale.com an educational technology coordinator earns \$49,652 per year (PayScale, Inc., 2017).

Table 1

Job Description #1: Elementary School

TITLE:	Technology Coordinator for Elementary School (Grades K-5)
LOCATION:	Anytown Elementary School, Anytown, NJ
EMPLOYMENT DATE:	Starting date is January 1, 2018
JOB SUMMARY:	The Educational Technology Coordinator provides leadership in all areas of technology and supports all instructional programs through the incorporation of technology in a classroom setting.

ESSENTIAL FUNCTIONS:	<p>The following are a list of essential functions of the educational technology coordinator:</p> <ul style="list-style-type: none">● Implement/expand online test administration such as PARCC, DORA, ADAM, Quarterly assessments, and My Learning Plan (Jersey City Public Schools District, 2016).● Support the elementary online curriculum resource programs through the use of iPads in kindergarten-second grade (non-tested grade levels) and Chromebooks in third-fifth grade.● Support 1:1 Chromebook initiative to encourage the implementation of adaptive learning.● Documents existing system infrastructure performance and aids in creating and implementing security policies and procedures (Jersey City Public Schools District, 2016)● Performs other duties as assigned by the building principal or District Superintendent● Developing the Acceptable User Policy (AUP) for the elementary school level and overseeing the creation of a curriculum for digital citizenship
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QUALIFICATIONS:	<ul style="list-style-type: none"> ● Bachelor’s Degree required (Master’s preferred) in Technology or related field ● Minimum four years of teaching in the elementary school level ● New Jersey teaching certification
KNOWLEDGE, SKILLS, AND ABILITIES:	<ul style="list-style-type: none"> ● Knowledge on designing high quality professional development for staff and administration ● Knowledge of making minor repairs to printers, computers, or any other instructional tools ● Excellent organizational, and decision-making skills.
TERMS OF EMPLOYMENT:	This is a tenure track twelve-month position. The starting salary is \$45,000.
EVALUATION:	In accordance to the Anytown Board of Education policy on evaluation of support staff, the performance of this job will be evaluated annually.

Table 2***Job Description #2: Middle School***

TITLE:	Technology Coordinator for Middle School (Grades 6-8)
LOCATION:	Anytown Elementary School, Anytown, NJ
EMPLOYMENT DATE:	Starting date is January 1, 2018

<p>JOB SUMMARY:</p>	<p>The Educational Technology Coordinator will provide assistance to Middle School administrators, students, and staff with maintaining technology systems, troubleshooting, and software. Additionally, the Educational Technology Coordinator will lead and instruct any professional development services on 6-8 instructional programs as needed by the district.</p>
<p>ESSENTIAL FUNCTIONS:</p>	<p>The following are a list of essential functions of the educational technology coordinator:</p> <ul style="list-style-type: none"> ● Have knowledge of all major subjects in grades 6-8 in order to effectively integrate technology while fostering collaboration and enhancing engagement in best practices ● Support the 1:1 Chromebook initiative and the implementation of Google Classroom ● Maintain districts inventory needed for student academic achievement and to implement PARCC assessment ● Implement/expand online test administration such as PARCC, PSAT, DORA, ADAM, Achieve 300, DOMA, and Quarterly assessments (Jersey City Public Schools District, 2016)

	<ul style="list-style-type: none"> ● Provide professional development on district web tools such as Infinite Campus, My Online Learning, Google Docs, Podcasting and the implementation of the Holt McDougal online aspect of the Language Arts and “Go Math” curriculum ● Assist school administration in gathering and presenting researched data (Eau Claire Area School District, 2010).
QUALIFICATIONS:	<ul style="list-style-type: none"> ● A Minimum of four years teaching experience preferably in Computer Technology ● A Bachelor's Degree in a Technology field (Computer Science preferred) ● Strong verbal and written communication skills ● New Jersey teaching certification.
KNOWLEDGE, SKILLS, AND ABILITIES:	<ul style="list-style-type: none"> ● Knowledge of instructional technology programming ● Ability to support the development of new educational technology initiatives ● Familiarized with the online test administration and district web tools ● Knowledge of network communication theory and troubleshooting techniques ● Knowledge in PARCC assessment technology

	preparation.
TERMS OF EMPLOYMENT:	This is a tenure track twelve-month position. The starting salary is \$45,000.
EVALUATION:	In accordance to the Anytown Board of Education policy on evaluation of support staff, the performance of this job will be evaluated annually.

Table 3***Job Description #3: High School***

TITLE:	Technology Coordinator for High School (Grades 9-12)
LOCATION:	Anytown Elementary School, Anytown, NJ
EMPLOYMENT DATE:	Starting date is January 1, 2018
JOB SUMMARY:	The Educational Technology Coordinator will implement, coordinate, and evaluate the integration of educational technology in the 9-12 classrooms and assist these teachers in their implementation of these tools.

ESSENTIAL FUNCTIONS:	<p>The following are a list of essential functions of the educational technology coordinator:</p> <ul style="list-style-type: none">● Implement and teach a program of study which will teach students how to use educational technology in order to research, gather and understand data, and present their findings. This program will also teach students coding.● Provide professional development and in-service days regarding educational technology including use of hardware and software and emerging technologies.● Assist teachers in the development of lesson plans and activities that will utilize educational technology in order for students to reach their student growth objectives.● Assist with maintaining all hardware such as but not limited to workstations and printers and assist with troubleshooting.● Assist in collaboration with other stakeholders to develop and implement the school's and district's technology plan.● Collaborate with stakeholders to write and secure grants in order to secure funds for the implementation of emerging educational technology.
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	<ul style="list-style-type: none"> ● Support the 1:1 Chromebook initiative and the implementation of Google Classroom. ● Implement/expand online test administration such as PARCC. ● Develop and manage the school’s technology resource center. ● Maintain the school’s website and technology page with resources for students, parents, and staff regarding emerging educational technology and frequently asked questions (The Paulo Freire Charter School, n.d.).
<p>QUALIFICATIONS:</p>	<p>The following are a list of qualifications in which the educational technology coordinator must possess:</p> <ul style="list-style-type: none"> ● Must have a Bachelor’s Degree in Educational Technology, Computer Science, or another related technology field from an accredited college or university. ● New Jersey teaching certification preferable in technology ● Have at least 5 years of 9-12 teaching experience preferably in technology (The Paulo Freire Charter School, n.d.).

KNOWLEDGE, SKILLS, AND ABILITIES:	<p>The educational coordinator must have the following knowledge, skills, and abilities:</p> <ul style="list-style-type: none">● Knowledge of network management including starting, maintaining, and updating the, network to assure the system can support all users on a daily basis and as more emerging educational technology becomes available.● Knowledge of educational programs, particularly knowing how to implement new curriculum including development and utilization.● Knowledge of child development and technology appropriate levels which correspond to that development.● Knowledge of effective teaching and classroom management.● Knowledge of creating assessments and maintaining data.● Knowledge of the latest technology particularly regarding educational technology.● Ability to communicate technology concepts to all individuals utilizing non-technical terms.● Ability to assist all stakeholders, specifically teachers and administrators, in the integration of educational
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	technology (The Paulo Freire Charter School, n.d.).
TERMS OF EMPLOYMENT:	This is a tenure track twelve-month position. The starting salary is \$45,000.
EVALUATION:	In accordance to the Anytown Board of Education policy on evaluation of support staff, the performance of this job will be evaluated annually.

Similarities and Differences

These job descriptions are postings for different school settings in the same district, so there are many similarities. For example, the terms of employment, starting salary, and evaluation criteria are the same. All of the technology coordinators are responsible for the 1:1 program in their school, although the hardware deployed in the school varies with the age of the students. All coordinators are also responsible for overseeing the standardized testing programs in their school. All three position descriptions also feature teacher-facing activities such as consulting on available educational technology techniques and providing professional development.

There are several dimensions which become progressively more rigorous as the student level changes. For example, while teaching certification is required for all three positions, the high school position specifies a preference for the technology certification, as the incumbent will be required to teach courses in computer technology and coding. The high school position also specifically mentions the maintenance of the school website as a requirement.

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