

K-12 Technology Coordinators: Expectations and Realities

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Abstract

This paper reports the findings of an exploratory study that investigates what Technology Coordinators (TC) are expected to do and what they actually do. Schools have invested large sums of money on technology and they have high expectations for the educational outcomes associated with the use of such technology. A question then arises regarding the expectations of the TC whose job it is to coordinate or manage the school's technology. What are the expectations for the TC? Do the expectations match what the TC actually does? Our exploratory study examines the expectations and realities in detail. The results of this exploratory study indicate that there is a disconnect between the expectations and the reality of the TC's job. We present three main findings. First for a TC to succeed, they must have a clear, yet dynamic, job description that is widely disseminated within the educational community. Second, job descriptions should vary depending on the needs of the TC's educational community. Third, the TC needs time built into their schedule to afford them the opportunity to work on professional development (PD) projects.

Background

According to the National Center for Educational Statistics, the average public school has 124 instructional computers (NCES, 2003), and 99% of all public schools have access to the Internet (NCES, 2002). The teacher with an interest in computers is ordinarily responsible for integrating the instructional computers into the curriculum. These teachers typically find themselves playing the role of the school or district TC.¹ We examine the roles of TCs to determine if the expectations match the reality of what the TCs are able to accomplish.

The literature on the TC's job responsibilities exemplifies the diverse views of the TC's responsibilities. The main area of agreement, across the literature, as to the TC's role is that of PD and technician (Strudler, 1999; Marcovitz, 1998; Reilly, 1999; Lai, Trevern & Pratt, 2002). The other combined roles of the TC include: Classroom Assistant, Curriculum Consultant, Curriculum Designer, Policy Maker, Strategic Planning, Manager and Envisioner (Strudler, 1999; Marcovitz, 1998; Reilly, 1999; Lai, Trevern & Pratt, 2002). This suggests that the expectations for TCs vary. The question is then: why so much variance?

Before we address the question of the variance in job responsibilities, it is important that we discuss effective PD for technology utilization in educational environments. PD was one area that the literature agreed was one of the TC's job responsibilities. We believe that PD is an evolutionary process and should be based on the technology needs of the community. Over time the method for professional development will change as the technological skills and needs of the educational community change. In other words, technology-related PD is a process that changes as teachers and students become more versed in technology (Sherry, Billig, Tavaline, & Gibson, 2000). There may be so much variance in the literature regarding the role of the TC because the needs for PD change over time.

This study seeks to determine what Technology Coordinators do and what others in their environment expect of them. We seek to determine if there is a disconnect between expectations and reality within educational environments and across environments. We believe there are two possible reasons for a disconnect. The first explanation is that the *technology needs* of the educational communities are diverse which accounts for the diversity in roles documented in the literature. If the first explanation is correct then the expectations within an individual TC's environment should match the reality of the job. The second explanation, for the wide variance in the roles of TCs reported in the literature, is that there are simply *too many expectations* for technology coordinators due to the varied ways in which technology is employed in the educational setting. If this second explanation is true, then expectations will not match the reality of the TC's jobs within and across educational communities.

We believe that everyone within a given educational community needs to have a clear understanding

of what the TC is expected to do to avoid inefficient and ineffective use of the technology. If there is a disconnect, then educational communities will need to determine ways to alleviate the disconnect and work towards a unified vision of reasonable expectations. A unified vision will allow schools to design the TC's role so that the TCs will fulfill the educational community's needs while avoiding inefficient and ineffective use of technology.

It is important to note that we use the title "Technology Coordinators" to refer to the individual who is responsible for coordinating and/or managing technology efforts within an educational environment. Depending on the school system, this person can be school-based or system-based. Some common titles for such positions are Computer Coordinator, Technology Facilitator, and Technology Coordinator. We refer to these positions in general and we realize that there are fundamental differences in school-based, district-based and system-based positions. This is an exploratory investigation that is looking at general expectations for those who coordinate technology efforts within educational environments.

Methodology

A descriptive, exploratory case study was conducted. To triangulate the results, a variety of data collection techniques were used and information was gathered from a variety of sources. What follows is a discussion of the participants and the collection methods.

Participants

Primary Participants Two district TCs and one middle school TC participated. TCs were selected based upon their willingness to participate and their proximity to the primary investigator's office.

Secondary Participants In addition to the TCs, four people (including a supervising administrator and a media coordinator who is at the same level as the TC) from each TC's school/school district participated in interviews.

The secondary participants are as follows:

Middle School TC: the Middle School Principal, the Middle School Media Coordinator and two teachers from the middle school.

District TC #1: the High School Principal, the District Wide Media Coordinator, the High School TC and a High School Teacher.

District TC #2: the Assistant Superintendent of the District, the District Wide Media Coordinator and two elementary school media coordinators.

By interviewing people who play different roles in relation to the TC we are able to get a greater perspective to enhance our understanding of the TC's activities.

Interviews

Primary Participants Prior to the interview, each TC received a copy of the interview questions. The goal of the interview was to get acquainted with the TC and gain an understanding of their role. The initial interview was approximately one-hour in length. Several days after the initial interview a half-day observation and a follow-up interview were conducted. The purpose was to clarify any ambiguities from the initial interview and to allow each TC an opportunity to expand upon their initial responses. A second, half-day observation was scheduled after the follow-up interview.

Subsequent to the second half-day observation a summary of the interview notes were sent to each participant for validation.

Secondary Participants Interviews took place after the initial interview with the TC. Each secondary participant received the interview questions prior to the interview. The purpose of these half-hour interviews was to learn how the TC interacts with their colleagues and their perceptions of the TC's role in the educational environment. The teachers and the media coordinators/specialists were asked the same questions while the administrators were asked two additional questions regarding the TC's responsibilities.

The information gathered from the interviews was recorded, synthesized, interpreted and sent to the corresponding study participant for validation purposes.

Observations

After the initial interview, each TC was shadowed for two half-day sessions. After each half-day

shadowing, observation notes were synthesized and sent to the TC for comment.

Documents

During the initial interview, each TC was asked for a copy of their official job description and any other material that would provide insight into their responsibilities (such as promotional materials for the school). Only the two district TCs had official job descriptions. Both of these descriptions listed a variety of activities and responsibilities. The brief descriptors were combined into a list of 20 descriptors (see table A). Each of the TCs and administrators were asked to determine which of the tasks the TC is responsible for and to rank the top five.

Analysis

The investigator's write-ups of the teacher interviews were sent to each respective teacher for comment. All but two teachers returned the investigator's write-ups. The corrections the investigator received were confined to the spelling of names and clarification of titles.

Once the majority of the respondents' comments on the write-ups were received, data from each of the sources and data gathering methods were coded. The Constant Comparison Method was used to code the data. The coded data was then analyzed for trends, relationships, and linkages between the codes. The trends were then synthesized and an expert in the field commented on the synthesis. A copy of the final write-up was sent for comment to each TC.

Results

Document Analysis

Table A lists the combined job descriptors for the two job descriptions provided by the participants. The columns next to the descriptors are the respondents' rankings for each descriptor with the TC listed first and the TC's supervisor immediately following. The numerical rankings are as follows. The most important descriptor is assigned a value of 1, the second a 2, and so on up to 5. An X indicates that the job descriptor is considered a part of the TC's job but was not considered one of the top 5 descriptors. A blank indicates that the respondent did not consider the job descriptor as part of the TC's job.

Table A: *Perceived Job Descriptors Document*

Descriptor	School		District			
	1	1a	2	2a	3	3a
Supervises and maintains operation of voice, data, video, and other technology systems.	2	1	X	X	1	X
Advocates technology utilization, awareness, and assists building technology committees.	5	X	2	2	2	5
Services and maintains related technologies and the wired infrastructure of the schools.	X	X		X	X	
Maintains the school's on-line bulletin board services.	X			X		X
Formulates and monitors, with the technology committee, a vision and a plan for technology implementation.	X	3	X	1	4	X
Coordinates distance learning activities.					X	X
Coordinates, evaluates, and recommends software purchases and replacement.	X	5	X	X	3	X
Maintains an inventory of technology for school computers.	X	X	X	X	X	
Plans and supervises technology maintenance.	X	X	X		X	3
Plans and provides staff development and training opportunities a.) Assists teachers with hardware and software problems. b.) Trouble shooter and repair technician when appropriate. c.) Assist the teachers in optimizing the integration of technology and instruction.	3	2	4	4	5	1
Develops and monitors specifications for technology purchases.	X	X	5	3	X	X
Trouble shooter and repair technician when appropriate.	1	X	X		X	X
Management of vendor relationships, including maintenance, hardware and software upgrades and ongoing development work with the system users.	X	X	1	5	X	X
Other duties as assigned by the superintendent or his designee.	X	X	X		X	
Plan offerings for xxx schools adult education concerning technology.			X		X	

Assist in development of building office automation plans.	X		X			
Disseminate info. about new tech., software, meetings, and classroom apps. of comps. to appropriate personnel.	4	4	X	X	2	X
Realize latest technologies and their educational applications by attending conferences, workshops and meetings.	X	X	3	X	X	2
Participate in state and national professional associations and encourage participation of other district personnel.	X	X	X	X	X	4
Disseminate info. about technology usage in xxx schools to parents, community members, students and faculty.	X		X		X	X
Agreement within school or district	83%		58%		73%	
Agreement across district			50%			

Interview Results

The following are the summaries of *all* of the interviews that were conducted.

Professional Development and Communication Skills The TC needs to freely provide information/instruction to others and not withhold information. The comfort level of the community improves as they receive more information and instruction. As one participant stated “the TC needs to be able to share (their) knowledge and empower others to become competent technology users.” Additionally, the TC needs to communicate and interact with people on a variety of levels and they need to be approachable and friendly so that everyone is comfortable seeking their assistance and training.

Well Versed in Technology and Education The majority of the interviewees stated that the TC needed to be well versed in how the school’s technological systems operate, as well as how people within the systems operate. With a solid understanding of these systems, the TC will be able to succeed in maintaining and operating the technology.

One administrator noted that “while school corporations might want to move the Technology Coordinator’s responsibilities away from working on technical aspects and more towards curriculum integration, it is a difficult task because many Technology Coordinator’s salaries come out of the capital project funds, which requires that they work on maintaining the school corporation’s hardware/software.” Another person noted, “while the district wide Technology Coordinator excels in integrating technology into the curriculum, she still spends a large portion of her time working on the upkeep and trouble-shooting of the technology.” This is mainly due to the way the technology support system is set up. It forces people in the school system to call upon the district-wide TC for technical maintenance.

Stressful job Many of the interviewees indicated that the TC’s job could be very stressful due to the wide variety of technologies and wide range of people with whom they interact. They need to be flexible in order to “switch gears” due to the nature of the job and the wide-variety of responsibilities. For instance, one person stated “the TC is the person that the teachers and staff go to for assistance with technology, ranging from resources to equipment requests, or training.”

To deal with the stress of the job some interviewees emphasized the ability of the TC to prioritize their responsibilities so that the most immediate needs are served first. One interviewee stated “they are being asked a question on a different topic every ten minutes.” Another stated the TC “needs to be on call to assist teachers when there are problems.” Many of the interviewees stated that it is important for the TC to refer questions and/or requests to others. Not all of the technology problems need to be solved by the TC personally. The belief is that if the TC is flexible and delegates tasks then their workload will become manageable.

Office locale Many interviewees stated that it was important to have access to the TC at all times to solve problems as they arise. Some felt that a key element to properly integrating the technology into the classroom is to have the person responsible for the integration of the technology become an active participant in that environment. Thus, it is important to locate the coordinator’s office in the same building if possible. Additionally having the TC in the same building opens the lines of communication. Having the TC’s office within close proximity allows the school to capitalize on their skills to a greater degree than a school that does not have easy access to the coordinator.

Visionary There were a few interviewees who stated that the district wide TC is a "visionary" who plans for future technologies within the educational environment. These plans include technology investments as well as plans for adapting the technology to keep it current.

Observation Results

Observations See Appendix A for illustrative transcripts of two observations. The number of transcripts presented in the appendix has been limited to conserve space. Pseudonyms are used to maintain anonymity.

Technology The TCs are responsible for a wide range of technologies. They included video retrieval, voice systems and computer systems (hardware and software, instructional and administrative). The software included: attendance, communication, productivity and instructional software.

Discussion

The following summarizes one of the themes that grew out of our study.

"We weren't trained to work on technology, we were trained to educate. We need to get back to that-- spending the majority of our time to work with education rather than the majority of the time working on the equipment." District Technology Coordinator

It was apparent from the results of the job description analysis and the interviews that all of those involved in the study believed that the primary responsibilities were to assist teachers with integrating technology into the curriculum and be responsible for the maintenance of the school environment's hardware and software.

Job descriptions As discussed in the results section, the TCs and administrators could agree on only one out of the 20 constructs that could be considered to be one of the TC's top five responsibilities. This construct is: "Plans and provides staff development and training opportunities a) assists teachers with hardware and software problems, b) trouble shooter and repair technician when appropriate, and c) assist the teachers in optimizing the integration of technology and instruction." This description incorporates both technology integration and responsibility for repairing and trouble-shooting technical problems.

A second construct that all but one of the TCs and administrators rated among the top five priorities was, "advocates technology utilization, awareness, and assists building technology committees."

It was clear from the job descriptions that the primary responsibilities of the TCs within and across communities are ensuring that the hardware and software is operational and PD. This was also consistently evident during the interviews and observations.

However, when it came to agreement within the educational community regarding the overall responsibilities, there did not appear to be much agreement between the TC and the supervisor (83%, 58%, and 73% agreement respectively). Furthermore there was only 50% agreement across the two school districts. This indicates that while there is agreement in regards to the primary responsibilities, the expectations for secondary responsibilities are not clear within or across educational environments.

Perceptions Everyone interviewed stated that the TC needs to be able to solve technical problems but they also need to be able to teach others how to use the technology in an educational setting. PD was perceived to be a very important part of the TC's job. This perception is consistent with the findings of the job descriptions. However, there seemed to be a disconnect between these responsibilities and how coordinators spent their time.

During the interview portion of the study only one TC agreed with their administrator on what their job description was. This TC didn't have an official job description. The unwritten yet commonly understood description was that the TC "...would be responsible for anything that has a bell, button or buzzer on it." However, when asked to rank the job descriptors this TC and supervisor achieved 83% agreement. The other two TCs had wide variance between the perceptions of the administrator and the TCs with regards to their responsibilities. Without a clear definition of what the TC is expected to do, there is a greater likelihood for coordinators to focus on only the most glaring problems first and then tend to other responsibilities when time allows. This was rather apparent during the observations.

Another cause of conflict is a question of the funds for which the TC's salary is paid. In two of the

schools the TC's salary was paid out of the capital projects fund, which is the fund for the maintenance and upkeep of the school building, furniture and equipment--including technology. In these instances it was necessary that the TC spend the majority of their time on the maintenance and upkeep of the technology. A problem arises when the TC is expected to assist with the integration of the technology into the curriculum. Every participant in the study indicated that integration was expected of the TC.

Wide Variance in Clients Abilities and Needs Throughout the observations and the interviews it was apparent that the TC had to work with a wide range of people. They assisted teachers who varied with regards to their technical skills, students, administrators, secretarial staff, parents and other members of the community.

Problems Associated with Being "On Call" The TCs stated that they needed to be able to quickly solve problems when a technical "emergency" arises. This idea was also stressed in the interviews with the TC's colleagues. There was an emphasis on the idea that the technology needed to be operational in order for it to be used--if it does not work no one can use it. As one interviewee stated, if the technology is unstable the staff will not use it because it will cause them to lose their "faith in the technology." It is unlikely that anyone would argue against the idea that the technology needs to be stable and operational. The concern is when the TC has to determine when maintenance takes priority over PD or another curriculum related responsibility.

Observations indicated that the TCs day was fragmented. People were constantly stopping by the office or stopping the TC in the hall to ask questions. Some of these questions did not need to be answered immediately but because the TC was "accessible," individuals asked questions regardless of what the TC was engaged in at the time. Additionally, it is important to note that the TCs thrived on being able to solve problems as they arise. Each appeared to be very good at what they do and appeared to have an excellent rapport with those with which they worked. These were important characteristics that were noted in the interviews. While the TC's day was fragmented due to issues associated with being "on call," one TC was observed preparing for a PD activity and another conducted a training session for members of the Chamber of Commerce.

In addition, each of the TCs developed coping mechanisms for their fragmented day, such as requiring individuals to send their questions or requests via e-mail. Or, establishing a "response tree," where a teacher with advanced technology skills is the first point of contact, then the TC. While these techniques are effective to a degree, there are those who would prefer to work directly with the TC. The interviews made it clear that the expectation was that the TC needed to be "on call" in order to answer questions and solve problems. Also based on the observations there were enough interruptions in the TC's day to make it difficult to spend a reasonable amount of time on technology integration projects.

Office locale The physical location of the TC's office seems to have an impact on how many interruptions or requests they have during the day. One TC's office was in a large room in the back corner with their assistants' desk directly off the entrance to the main room. The assistant served as a gatekeeper for the coordinator. She took care of the computer lab scheduling, answered some of the walk-in traffic questions, answered phone requests and during her spare time she evaluated educational software. The TC was still interrupted however the interruptions were minimal as compared to the other two TCs, who did not have gatekeepers. The other two TCs' offices were in high traffic areas and they did not have a person who served as a filter for technology questions. Each of these coordinators indicated that their offices were going to be moved soon to a locale that has lower walk-in traffic. Each was looking forward to their move because they felt that it would afford them more time to work on educational activities.

Responsibility for Technology The simple fact is that the more technology that the TC oversees the greater likelihood that they will spend their time maintaining, repairing or upgrading. As noted in the results section, each of the TCs had a large variety of software and equipment for which they were responsible. A large quantity and variety of technology can influence the amount of time that the TC has to spend on maintaining the technology rather than on curriculum integration.

Conclusion and Recommendations

The purpose of this research is to determine if there is a disconnect between what TCs are expected to do and what they actually do. This is one inquiry in the greater pursuit of efficient and effective utilization of technology in educational environments. The results of this exploratory case study indicate that the primary responsibilities for TCs are to integrate technology into the curriculum and to be responsible for the maintenance and upkeep of the school/district's hardware and software. There wasn't much agreement amongst

the participants within or across educational communities, regarding other responsibilities and the expectations for attaining these primary responsibilities. Additionally, the reality of the job appears to indicate that the majority of the TC's time is spent on the maintenance and upkeep of the school/district's hardware and software, leaving a small portion of their time for technology integration projects.

Clear job descriptions need to be developed to match the needs of the educational environment. These job descriptions need to be dynamic to meet the ever-changing needs and technical skills of the TC's educational community. Additionally, this job description needs to match the TC's end-of-year evaluation criteria, which should be dynamic as well. Both the job description and the end of year evaluation should be reevaluated every year or two and revised as necessary to meet current needs.

There are several things that need to be taken into consideration before these job descriptions can be identified. There needs to be a clear vision within the school of what it means to integrate technology into the curriculum. Additionally, it needs to be clear whom the TC primarily supports (ie, teachers, students, administrators, etc.) and their skill level.

The job description of the TC needs to take into account the amount and variety of technology that the coordinator is responsible for and the skill levels of the teachers and students. As technology is added to the school system the job description needs to be modified to account for the change. Finally, the source of TC's salary needs to be clear as it may determine the nature of the tasks that the TC can perform.

The TC's job description should be based on the unique needs of the educational community in which they serve. This means that there are going to be different job descriptions for different TCs. Thus, there should be variance in expectations across education communities in regards to the responsibilities of TCs.

In order to assist the TC with meeting the expectations of their job it is important to schedule time into the daily routine of the TC when they do not work on anything but curricular tasks. The TC needs time when they are not "on call" so that they can be guaranteed uninterrupted time for work with curriculum integration. This time needs to be equivalent to "planning periods" for teachers and it needs to be "advertised" amongst the school community.

The job description of the TC should be widely disseminated within the educational community, as well as, the time periods that are set aside for the TC to work on specific responsibilities. Clear, dynamic job descriptions and dedicated time for TCs for working on PD will aide in effective and efficient use of the technology.

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Appendix A: Observation Results

Excerpt from one District TCs. We are in the computer lab and the server just crashed.

1:47. Machine that is copying the CD to the network stopped running. Message on the screen read "general failure reading drive." Kathy makes a phone call "this is (Kathy) could you tell (the media coordinator) to reboot the lab server? (Listening) ok." She hangs up the phone. Kathy turns off the remainder of the machines. Stating "this is so aggravating. I'll do this another day. They're locked up totally."

Technician (T): I tell you what--once they get the server restarted we could try again.

Kathy (K): I've got a meeting, I can't.

T: Well, just get it started and I'll check on it later.

K: OK... Well let's just wait the server's been crashing a lot lately. The service person's coming out to work on the problem. We've at least got the 256 colors working.

T: You've got my beeper number. Technician leaves.

1:50. Phone rings. Kathy picks up the phone. "This is [Kathy] (listening) you are kidding! (Listening) ok! (Listening) we're doing the Internet with the chamber of commerce tomorrow morning. (Listening) Ok, I'll be right there." Kathy looks at me and says, "the server won't come back up" Kathy grabbed her box and we left the computer lab.

1:57. We stopped in office to drop off the box. Someone in the office asks Kathy if she could get a Word Processing manual from her. She responds and then asks for envelopes to put the materials in the box in.

2:00. We leave the office and head towards the media center to check on the server. She gives me a newsletter that she has written up and explains that she has a lot of friends in the district and they are now starting to ask her to come to their home and assist them with their equipment. She worked on three machines last week. She brought this up to the administration and they said that she should start charging them, which she did. She flipped through some of the mail that she picked up at the office. As we turn the corner towards the media center, the technician is waiting in the hallway for us.

Technician: The server can't find its name and the hard drive is making galloping sounds. It's not finding the system.

Kathy: This is serious isn't it?

Technician: yep.

The technician then reboots the machine and asks Kathy to listen closely to the hard drive.

Kathy: I'm gonna call AmeriData. What's it say? "system not mounted." I'm gonna tell him this is serious big time serious.

We walk over to her office that is the next hall over. She goes behind her desk and picks up the phone. She looks at me and says "and, this is just one building. This building is a full-time job in itself. It really is!" She then calls AmeriData--gets an answering machine and leaves a message, "this is Kathy from xxx that server has really crashed. I'll be in a meeting at guidance now you could call there and talk to me. From 3:45-5 I'll be at xxx you could call me there the number is xxxxx or you could call me at home this evening the number is xxxxx. The server can't find its name and it's unable to mount the system. I need to know if this could be fixed because I might have to reschedule a meeting for tomorrow morning." She made a phone call to another place there was no answer. Then she called someone else and left a message stating the problems with the server. And, called yet another person who teaches adult education classes in the evening using the computer lab and left a message with him.

Excerpt of School Technology Coordinator walking into his office

9:55 As soon as we walked in to Rich's work area his assistant said that we had to go back to the principal's office. He just called. So, we turned around and we headed back to the main offices.

9:56 On our way out a woman stopped Rich asking for help. She lost her E-mail. He told her he would stop by after he helped someone else.

9:57 Then as we got a little farther two other people meet up with Rich in the hallway, stating that he was exactly the person they wanted to see. He deferred their questions to his assistant.