

# Instructional Technology Specialists and Curriculum Work

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## Abstract

*This case study investigated the job responsibilities of district-level instructional technology specialists that related to curriculum work and the perceptions the specialists had concerning their job responsibilities and their relationship to curriculum work. Data were collected through document analysis, shadowing, interviews, and a focus group. A framework of curriculum themes and categories was created, which was then used to define instructional technology work. Instructional technology specialists were found to be engaged in many aspects of curriculum work. The individual and focus group interviews revealed factors the participants considered to be barriers to getting their work done. Recommendations are provided for overcoming these barriers and a call is made to reconceptualize instructional technology specialists as curriculum workers. (Keywords: instructional technology, curriculum, district organization).*

## INTRODUCTION

A typical central office for a public school district has a number of people involved in activities designed to improve and support instruction and student achievement. One group of these people is curriculum workers; another group is instructional technology specialists. Curriculum workers and instructional technology specialists are frequently found in different departments in the central office, and they are usually seen to have different areas of responsibility. However, a close examination of job responsibilities often shows both are expected to perform many of the same functions.

The advent of central office curriculum workers occurred in the early 20<sup>th</sup> century as supervisors were needed to assist superintendents in goal setting, supervision of teachers, and enforcement of the mandated curriculum (Harris, 1967). This job has changed over the years to encompass other activities such as curriculum development, improving instruction, providing professional development, and providing resources and materials (Georgia State Department of Education, 1984; Harris; Hodges, 2001; Sharp, 1955). In contrast, instructional technology specialists are relatively new to education, having emerged in the last 25 years as computers became more important in day-to-day instruction (Moursund, 1992) because there was a need for additional support to manage the new technology (Frazier & Bailey, 2004). The early instructional technology specialists had many duties, ranging from providing technical and instructional assistance to teachers and students to planning for the use of technology, providing staff development, writing grants, and maintaining the equipment (Moursund). As their jobs have evolved, instructional technology specialists find themselves involved more and more in curriculum-related activities (Carter, 1997; Reilly, 2001).

There has been little research into exactly what instructional technology

specialists do on a district level and much of the literature on this subject is descriptive or outdated. There are several authors who have published articles in practitioner's journals that have considered issues related to instructional technology and curriculum. For example, Reilly (1999, 2001), Shields (2001, 2003), and Hofer, Chamberlain, and Scot (2004) described the connections between the work of instructional technology specialists and curriculum work. Each of them suggested that there were issues concerning technology and curriculum that need to be addressed by school districts in order to ensure the effective and meaningful use of technology in the curriculum, but none of these authors had engaged in research studies designed to show the relationship of instructional technology to curriculum work. Moursund (1992) is the author of a short book that discusses many aspects of a technology coordinator's job. In it, he makes strong connections between the job of an instructional technology specialist and curriculum work, but this work is now more than 10 years old. Between 1986 and 1990, *Electronic Learning* magazine conducted three surveys concerning computer coordinators (Barbour, 1986; Bruder, 1990; McGinty, 1987). These nationwide surveys gathered various data about district-level computer coordinators and their jobs. But the last of these surveys was conducted 15 years ago, so this data is out of date. Another national survey of district technology coordinators was conducted in 2003 and does include information on job responsibilities, but not in great detail (McLeod, 2003). There are other articles and job descriptions available that describe what instructional technology specialists do, but these are not research studies (Bray, 1998; Carter, 1997; Carter, 2000; Frazier & Bailey, 2004; Fuller, 2000; Minot, n.d.a.; Minot, n.d.b.; North Carolina, n.d.; Parham, 2001; Re-defining, n.d.; Wisconsin, n.d.).

Various influences on district-level curriculum work were found in the literature, even though there is a lack of current research in this area. Although there are many different ways to accomplish curriculum work in a school district, there are also many contextual factors that influence—both positively and negatively—how that work is done. The organizational structure of the district, as well as district procedures and policies and budget priorities can impede or expedite the flow of work (Hamm, 1994). As far back as 1938, Caswell noted that curriculum work was often done in “a separate division” (p. 245). Pajak (1989) said that organizations were structured in certain ways so that tasks could be carried out efficiently. Sewall (1999) discussed how district organization gets more complicated as the size of the district increases. She also noted that the size of a district affected curriculum work, depending on where the curriculum director resides on the organizational chart. This would affect to whom the curriculum director reported and the relationship of that director and the curriculum specialists to other district instructional support personnel (Sewall, 1999).

It is clear there is a need for systematic analysis of the job responsibilities of instructional technology specialists related to curriculum work. The integration of technology into school curricula has not happened as quickly or as thoroughly as many had hoped for. The more we understand the factors that contribute

to and hinder the technology integration process, the more we can do to ensure that the technology will become a part of the curriculum and the everyday educational experience for students. This study increases our understanding of curriculum work conducted at the district level and how instructional technology specialists contribute to curriculum. It examines the way in which instructional technology specialists are viewed in a school district. If they are seen as engaged in work that supports the curriculum and enhances student achievement, their work will be viewed as more important—more credence will be given to it. They will be more able to accomplish their goals, thus increasing the likelihood that the use of technology will become institutionalized. Some unexpected results of this study ask us to consider the importance of the location of these workers in the district organization. Too often, district instructional support personnel such as instructional technology specialists work in isolation in their own departments. This has implications for the ways in which they are perceived in the district, the ways they perform their jobs, and for the effect of their work on student achievement.

## CONCEPTUAL FRAMEWORK

This study was grounded in the work of Hamm (1994), Pajak (1989), and Sharp (1955), which provided concrete themes and categories to describe various aspects of curriculum work on a district level. Although they were not the only authors in the literature to name and describe categories of curriculum work, their work was thought to be more comprehensive and overlapped other work in many cases (see Table 1). In general, the work of these individuals can be organized into the categories of curriculum and instruction, technical expertise, program management, coordination, and communication.

The work of a number of other authors (Brooks-Young, 2002; Dias, 1999; Dockstader, 1999; Earle, 2002; Moursund, 1992; Reilly, 1999; Shields, 2001; Sun, 2000; Webster, 2004) provided descriptions of the work instructional technology specialists do. The categories of work derived from their work and that of others (Bray, 1998; Carter, 2000; Fuller, 2000; Minot, n.d.a; Minot, n.d.b; North Carolina, n.d.; Parham, 2001; Re-defining, n.d.; and Wisconsin, n.d.) are shown in Table 2. The work of these professionals includes staff development, collaboration with others to integrate technology into the curriculum, developing curriculum materials and lesson plans, program evaluation, and dealing with resources.

The descriptions of curriculum work as established in the conceptual framework of this study were compared to the themes and categories of Hamm (1994), Pajak (1989), and Sharp (1955), and aligned with those themes and categories, thus demonstrating a preliminary relationship between curriculum work and the work of instructional technology specialists. As illustrated in Table 3, similarities involved four themes and 11 categories while differences included one theme and eight categories. These themes and categories served as a framework for the analysis of documents and for the development of questions for the interviews. It also provided an initial classification system for the analysis of the shadowing observations as well as the interviews.

**Table 1: Themes and Categories for Curriculum Work**

Themes	Categories
Curriculum and instruction	Developing curriculum
	Selecting and developing materials
	Improving curriculum
	Providing resources
	Envisioning high quality curriculum
	Providing instructional support
Technical expertise	Forecasting and anticipating problems
	Providing information on instruction and curriculum issues
	Engaging in personal and professional growth
	Maintaining positive community relations
Program management	Providing staff development
	Evaluating programs and conducting research
Coordination	Standardizing and routinizing
	Planning and goal setting
	Organizing committees
Communication	Informal
	Formal
	Scheduled
	Unscheduled

**RESEARCH QUESTIONS**

Two research questions guided this study:

What professional duties do instructional technology specialists in the Palmetto Public School District perceive they have that relate to curriculum work?

What specific job responsibilities do instructional technology specialists in the Palmetto Public School District have that relate to curriculum work?

**METHOD**

In this case study, I examined the job responsibilities of instructional technology specialists and explored the relationships between those responsibilities and curriculum work in a public school district in South Carolina. Data were collected from various sources (documents, shadowing, individual interviews, and focus group interview) to provide information from different perspectives, to

**Table 2: Categories of Instructional Technology Work**

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- Staff development/teacher training
  - Collaborating with teachers and curriculum coordinator to integrate technology into the instructional program; coordinate pedagogy and technology
  - Developing curriculum materials and lesson plans
  - Developing curriculum
  - Working with curriculum committees on technology integration
  - Visioning, strategic planning, goal-setting
  - Evaluating programs
  - Solving problems
  - Dealing with resources
  - Researching and dispersing information
- 

allow for triangulation of data, and to develop thick description (Geertz, 1973). Data were obtained through shadowing, document analysis, and individual and focus group interviews with three district-level instructional technology specialists and one former instructional technology specialist who had recently transferred to another position in the same department.

## **PARTICIPANTS AND SETTING**

Pseudonyms were used for the school district and the four participants in the study, at the participants' request. The study was conducted in the Palmetto Public School District, which is located in central South Carolina. The district serves a diverse student population in 48 schools. The deputy superintendent has the responsibility for managing the instructional support departments in the district. Three area superintendents oversee the schools and report to the superintendent. The participants for this study are all located in the Instructional Technology Services (ITS) department which falls under the supervision of the Director of Instructional Technology. The Director reports to the Executive Director for Information Technology who reports to the Deputy Superintendent. The Instructional Technology Services department also includes Media Services. The Director, who is a former school media specialist, also oversees the media specialists in the schools and the media program in the district. The school media specialists also serve as the instructional technology specialists in the schools. Figure 1 (page 7) shows the organizational chart for this district and the relationship between these groups of people.

The participants in the study were Barb, Donna, and Marian, who are the three instructional technology specialists, and Mike, who is the former instructional technology specialist. The participants' backgrounds were varied. Barb has a bachelor's degree in fine arts and a master's degree in library and information science. She has been employed with the Palmetto Public School District as an instructional technology specialist for three and a half years. Pre-

**Table 3: Comparison of Categories of Curriculum Work and Instructional Technology Work**

Themes	Categories	
	Curriculum Work	Instructional Technology Work
Curriculum and instruction	Developing curriculum	Developing curriculum
	Selecting and developing materials	Developing curriculum materials and lesson plans
	Improving curriculum	Collaborating with curriculum committees; integrating technology into the curriculum
	Providing resources	Dealing with resources
	Envisioning high quality curriculum	Visioning, strategic planning, goal-setting
	Providing instructional support	Collaborating with teachers, curriculum coordinators, and curriculum committees to integrate technology into the instructional program; meeting instructional needs
Technical expertise	Forecasting and anticipating problems	Solving problems
	Providing information on instruction and curriculum issues	Researching and dispersing information
	Engaging in personal and profession growth	
	Maintaining positive community relations	
Program management	Providing staff development	Providing staff development and conducting teacher training
	Evaluating programs and conducting research	Evaluating programs
Coordination	Standardizing and routinizing	Instructional technology work
	Planning and goal setting	Coordinating pedagogy and technology
	Organizing committees	
Communication	Informal	
	Formal	
	Scheduled	
	Unscheduled	

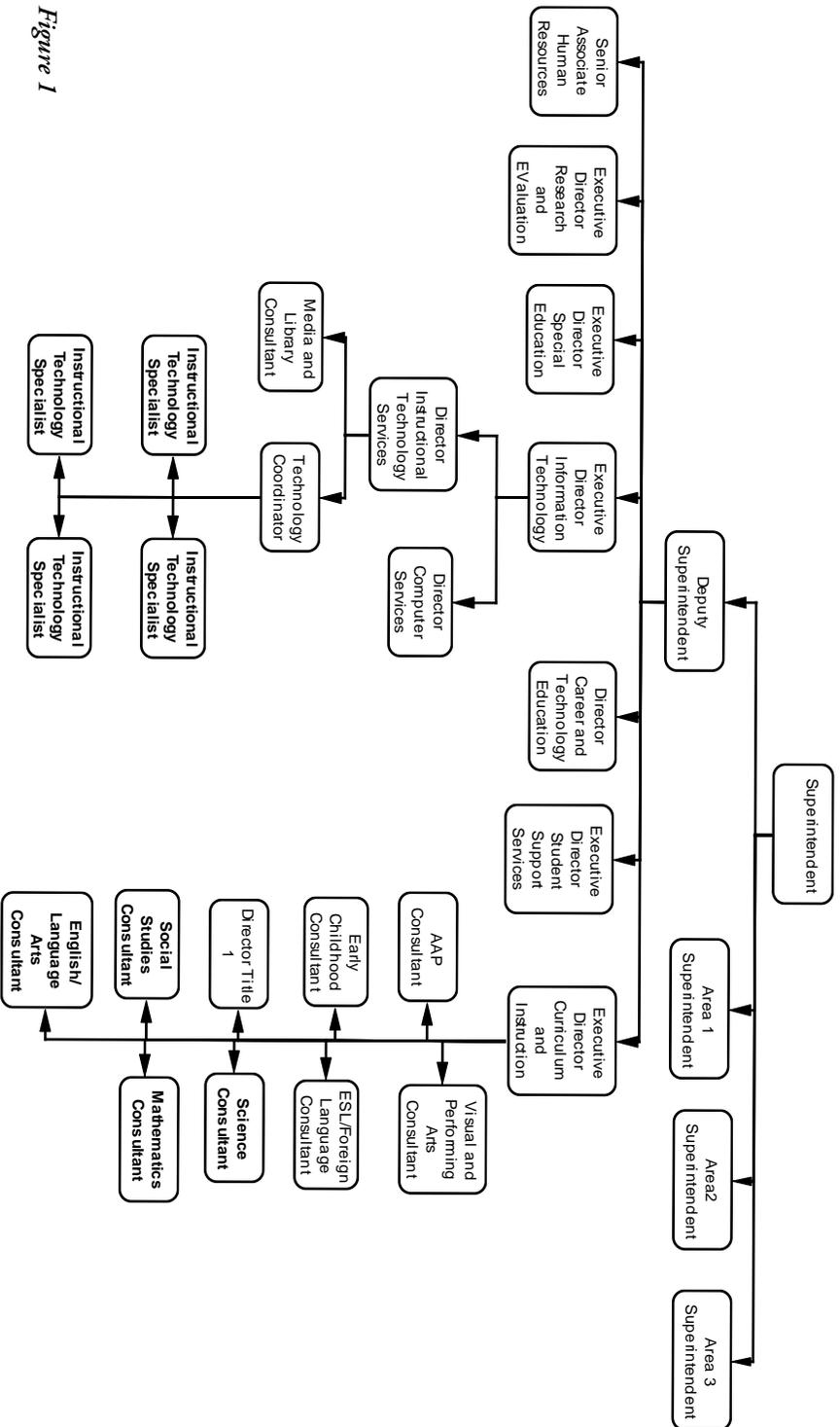


Figure 1

viously she had been employed as a reference librarian at a local university, but an environmental health problem caused her to seek employment elsewhere. She has experience in teaching at a university and in Web page design and administration.

Donna has been in the district for 14 years and in the instructional technology department for six years. She has a bachelor's degree in business education and an extensive background in computer technology. Before she worked for the district, she worked in computer sales. She began her work in the district as a technical support person and moved into the instructional technology department primarily to oversee and coordinate training for the student administrative software. Her job responsibilities gradually changed over a few years to focus more on assisting schools and teachers with technology integration and teaching workshops and classes other than those concerned with the student administrative software.

Marian has a bachelor's degree in finance and a master's degree in business administration, and is currently enrolled in an educational specialist program for guidance counselors. She began her career as a computer programmer and came to the Palmetto Public School District to work in technical support. When the school district was awarded a federal technology grant in 1998, she became involved with that grant in the community outreach area. After returning from an extended maternity leave, she took another position with the grant as a technology educator. This turned into the current position of instructional technology specialist when the grant ended three years ago. She has been with the district a total of six and a half years.

Mike has a bachelor's degree in elementary education and a master's degree in library and information science, and is a National Board Certified media specialist. Previous to working as an instructional technology specialist, he was an elementary school teacher and a school media specialist in another state. He began working in the district as a school media specialist and then became one of the instructional technology specialists when a vacancy occurred three years ago. He was promoted to media consultant for the district three months before this study began, and maintained a close working relationship with the instructional technology specialists, as they were all located in the same department and frequently had mutual concerns and responsibilities. He has also worked in the district for six and a half years.

Although it is unusual for individuals with such varied backgrounds to be involved in helping teachers integrate technology (only Mike has teaching experience in a public school setting), they all seem to have a clear understanding of how technology relates to the curriculum and are active in pursuing professional development related to their jobs. All have experience working in various educational settings, although not all as classroom teachers. Mike and Barb both have media specialist backgrounds. As noted, the school media specialists are also the school instructional technology specialists. The director of the department is a former school media specialist. She is also in charge of the school media programs. In this situation, the ties between technology and media specialists are evident.

## PROCEDURE

Purposeful sampling was used to choose the Palmetto Public School District for this study. This site was an “information-rich” (Patton, 1990, p. 169) case for study “that manifests the phenomenon of interest intensely (but not extremely)” (Patton, p. 171), as the district instructional technology specialists who constitute the unit of analysis for this case were already involved in activities with the district curriculum workers. The site is also what Marshall and Rossman (1999) call a “realistic” (p. 69) site in that there is a “high probability that a rich mix of the processes, people, programs, interactions, and structures of interest are present” (p. 69); there is a reasonable assurance of valuable and credible data, there is a high likelihood of a trusting relationship to be found between the researcher and subjects; and it is possible to gain entry to the site (Marshall & Rossman, 1999). At the time of this study, I worked in the district that was investigated, so I had ready access to the information and people needed for the study. I had a relationship of trust and honesty with the other instructional technology specialists before the study began and this did not change over the course of the study. I discussed the study with the participants before the study began and obtained their support and kept them informed about the progress of the study. This openness kept them receptive to aiding in the research and maintained their trust.

I used internal sampling as described by Bogden and Biklen (1998) to make decisions about with whom to talk, when to conduct observations, what documents to review, and so forth. Since case study is a method of natural inquiry (Lincoln & Guba, 1985), I used interviews, a focus group, shadowing, and document analysis as the methods of data collection. I followed the funnel model of data collection that Bogden and Biklen and Marshall and Rossman (1999) described; that is, I began by collecting data widely at first, then narrowed the collection as the focus of the study became clearer.

Thick description was developed using field notes from the shadowing, the interview and focus group transcriptions, and the notes from the document analysis. I kept a journal that contained reflective field notes, as well as my impressions and observations, to contribute to the thick description. Letters of informed consent for the data collection were given to the participants before any data collection took place. Each participant signed and returned the letter before the shadowing and interviews were scheduled.

## DATA COLLECTION AND ANALYSIS

Because qualitative research is emergent, evolving, and interpretive (Marshall & Rossman, 1999), I used information as it was collected to make decisions about subsequent activities. The data collection took place in a planned sequence so that certain activities could help inform subsequent ones. First, various documents were gathered before any other data collection was done. These documents included the district’s organizational chart, job descriptions, course syllabi, and weekly schedules. Documents collected also included meeting agenda from the ITS weekly staff meetings and from the monthly Joint Department Leadership Team (JDLT) meetings (The JDLT is composed of district-

**Table 4: Themes and Categories of Curriculum Work Done by Instructional Technology Specialists**

Themes	Categories
Curriculum and instruction	Teacher technology portfolio
	Dealing with change
	Promoting the district's curriculum
	Developing curriculum
	Selecting and developing materials
	Improving <i>and changing</i> curriculum
	Providing resources
	Envisioning high quality curriculum
	<i>Evaluating instruction</i>
	Providing instructional support
Technical expertise	Integrating technology
	Evaluating and updating policies and procedures
	Providing technical assistance
	<i>Evaluating programs/research</i>
	Dealing with problems and issues
	Providing information on instruction and curriculum issues
	Engaging in personal and professional growth
	Maintaining positive community relations
Program management	Dealing with accountability
	Providing staff development
	Evaluating programs/conducting research
Coordination	Standardizing and routinizing
	Planning and goal setting
Communication	Informal
	Formal
	Scheduled
	Unscheduled

level instructional support personnel). They were organized into several categories to facilitate the analysis. Barb, Marian, and Donna were each shadowed for one day and then they were interviewed. Next, Mike was interviewed and then more documents were collected. The semi-structured interviews included questions about their job responsibilities, the relationship between curriculum and technology, and technology integration. The interviews were recorded and verbatim transcripts were made. Each participant was given a copy of his or her transcript to read and check for accuracy. No changes were made to any transcripts. Lastly, a focus group with all four participants was formed. The purpose of the focus group was to give the participants the opportunity to discuss ideas and issues previously raised in the shadowing and interviews, and to introduce issues and ideas not previously considered. The focus group also provided an opportunity for me to check tentative conclusions, and to confirm information previously obtained from the shadowing and interviews. The questions for the focus group were based on the data gathered from the shadowing observations, the individual interviews, and the document analysis. For one of the questions, the participants were given the list of themes and categories of curriculum work constructed from the work of Hamm (1994), Pajak (1989), and Sharp (1955) shown in Table 1 and were asked to discuss ways in which the work that they do were related to the items on the list.

To address the research questions, I developed a list of themes and categories based on the comparison of categories of curriculum work and instructional technology work as shown in Table 3. This was accomplished by analyzing each piece of data using codes initially developed from the categories in Table 1. As new topics emerged from the data, new codes were added. The analysis resulted in several categories being eliminated, two categories being combined, and two categories being added. The original themes were maintained, as no additional ones were found in the data.

## **RESULTS**

The first research question asked, “What professional duties do instructional technology specialists in the Palmetto Public School District perceive they have that relate to curriculum work?” This question was answered with data from the interviews and the focus group. The second research question was, “What specific job responsibilities do instructional technology specialists in the Palmetto Public School District have that relate to curriculum work?” Data from analyses of the documents, interviews, and focus group provided answers for this question. Data that answered the first research question also helped to answer the second one.

## **THEMES AND CATEGORIES OF CURRICULUM WORK**

Using Table 3 and the results from the data analyses of this study, a list of themes and corresponding categories of curriculum work done by instructional technology specialists was developed. These themes and categories are shown in Table 4. As noted above, this list included two categories that were combined and two new ones that were added. These are shown in italics in the table.

These themes and categories provide a description of what instructional technology specialists do that pertains to curriculum work in the district and gives us a better understanding of how their work relates to curriculum work.

## **PERCEIVED RELATIONSHIP OF JOB RESPONSIBILITIES TO CURRICULUM WORK**

The instructional technology specialists believed they had many job responsibilities that correlated to the themes and categories of curriculum work identified in this study. When given the framework of district-level curriculum work themes and categories to comment on, the participants in this study felt their work could be correlated to all the themes. They drew on their belief that technology and curriculum are intertwined, or should be. Donna said,

Technology has to be a part of the curriculum for our students today . . . it has to be part of the curriculum for them to achieve and to learn to live in the world they are going to live in. I don't think today you can have curriculum without technology . . . We can't teach today without including technology. (personal communication, January 21, 2005)

They all felt they were involved in each of the categories under the curriculum and instruction theme, especially through their association with the teacher technology portfolios, the Joint Department Leadership Team, and the content area teams. They also noted involvement in curriculum development through the courses they teach.

In the technical expertise theme, they agreed that dealing with problems and engaging in personal and professional growth were the primary categories of involvement. Mike discussed how the instructional technology specialists made a nominal contribution to community relations through some programming on the district's television channel and management of the annual visual literacy contests.

In the area of program management, they highlighted their involvement in various professional development activities, program evaluation activities, and research. In discussing their involvement in staff development and evaluating programs, Barb remarked, "I think we spend too much time doing the first and not enough time doing the second" (personal communication, February 4, 2005). Donna added, "But doing research is how we come up with the courses that we offer . . . what is needed based on research" (personal communication, February 4, 2005).

They also felt they were involved in activities in the coordination category on the list, noting standardizing and routinizing through the participation in School Priority Teams, school technology committees, and the lesson plan template that is part of the teacher technology portfolio.

## **ACTUAL RELATIONSHIP OF JOB RESPONSIBILITIES TO CURRICULUM WORK**

The instructional technology specialists were found to have many job responsibilities that pertained to curriculum work. They had job responsibilities that correlated to all five of the curriculum themes identified from the work

of Hamm (1994), Pajak (1989), and Sharp (1955) that were used as the framework of this study. Some of these were working with teachers to help them integrate technology into the curriculum through teaching courses and workshops, helping teachers develop lesson plans that utilized technology, and supporting teachers as they developed their technology portfolios. These activities had them involved in curriculum development, working with resources, selecting and developing materials, providing instructional support and information on instruction and curriculum, and providing staff development. Through their membership on district-level curriculum committees and the Joint Department Leadership Team, the instructional technology specialists were involved in goal-setting, improving curriculum, planning, evaluating and updating policies and procedures, dealing with problems, and program management.

The analyses of the various documents gathered for this project showed convincing connections to curriculum work and also demonstrated how the instructional technology specialists were involved in curriculum work. Analysis of the agenda from various meetings the instructional technology specialists attended showed all of the ITS staff-meeting agenda contained at least one item that fell under one of the curriculum work themes. Seventy-eight percent of the JDLT meeting agenda contained at least one item that fell under one of those themes. Analysis of other documents classified as district documents (instructional technology job description, a handout for principals, a brochure from ITS, the district organizational chart, and the district technology plan) showed a strong relationship to the identified themes and categories. The syllabi of the courses taught by the instructional technology specialists were analyzed with respect to the projects required of the students in those courses. This analysis showed 61% of the course projects related to curriculum work, specifically in the curriculum and instruction category. The documents from the JDLT meetings could be included in all of the curriculum work themes except for technical expertise. Analysis of the instructional technology specialists' sample weekly schedules showed the activities on the schedules falling under the curriculum and instruction and program evaluation themes.

## **INSTRUCTIONAL TECHNOLOGY SPECIALISTS AS CURRICULUM WORKERS**

The instructional technology specialists considered themselves to be curriculum workers. Study participants saw themselves as involved in many aspects of curriculum work through their professional activities. Mike remarked that he saw technology “as a tool that could help accomplish the goals of the curriculum” (personal communication, January 26, 2005) and that one of the tasks he did was to help teachers integrate technology into their lessons. He said that he had to know the curriculum and be familiar with the standards and objectives in order to do that.

Barb perceived herself as a curriculum worker because she felt that she couldn't separate the use of technology from the curriculum itself, that they go “hand in glove” (personal communication, January 18, 2005). “You've got to

find ways to work with the curriculum, to integrate that . . . or otherwise it's not authentic" (Barb, personal communication, January 18, 2005).

Donna also felt she was a curriculum worker because of the work she does with teachers—helping them integrate technology into their curriculum. She noted the time she spends working with teachers and encouraging them to be sure they are “just not doing technology for technology’s sake but that it’s really needed in . . . whatever that lesson is and thus meet curriculum standards” (personal communication, January 21, 2005). She also noted that when helping teachers integrate technology she looks for the technology to meet the curriculum standards and she looks to see if the activity in the lesson is appropriate for the grade level.

## **PERCEIVED BARRIERS**

An unexpected outcome of the interviews and focus group was frustration and concern relating to perceived barriers to getting work done. Participants noted exclusion from decision-making, a lack of time to spend in schools, and communication, relationship and leadership issues as limiting the contributions they make to curriculum work and getting their work done. Other barriers they identified were accountability issues and a perceived disconnect between technology and curriculum by teachers and by district-level instructional support personnel. “Teachers seem to think that if they have computer skills and are using those skills, then they are integrating technology into their curriculum,” according to Barb (personal communication, January 18, 2005). The instructional technology specialists felt the district’s curriculum specialists had not changed their focus on curriculum to include technology. Mike felt the instructional technology specialists were more curriculum workers than the curriculum specialists themselves because “most of the curriculum specialists don’t have a clue about technology and don’t see it as part of the curriculum. . . .” (personal communication, January 26, 2005). He believed the instructional technology specialists provided more support to teachers by implementing their curriculum through the use of technology, and that in the process of helping teachers integrate technology into their curriculum, the instructional technology specialists also taught them how to use books and higher-order thinking skills, activities, hands-on, manipulatives, those kinds of things. . . . They [the curriculum specialists] sort of built the foundation but we built the house on top of the foundation through our use of technology (Mike, personal communication, January 26, 2005).

## **DISCUSSION AND RECOMMENDATIONS**

The literature review for this study has shown that curriculum work on a district level has been researched and documented. That same level of research and documentation on instructional technology work does not exist; therefore, it is more difficult to understand exactly what instructional technology work is and what its relationship to curriculum work is. A study such as this one is a beginning to understanding this relationship and its significance.

## PERCEPTIONS AND RESPONSIBILITIES

The instructional technology specialists in the Palmetto Public School District are involved in many activities that are, indeed, curriculum work as defined in the themes and categories of Hamm (1994), Pajak (1989), and Sharp (1955). They consider themselves to be curriculum workers and describe the focus of their jobs as changing over time from one of technical issues and computer skills to that of technology integration. Given the framework of curriculum work themes and categories to comment on, they felt they could relate the work they do to all the themes on the framework. Most of the study participants consider the most important aspects of their job to be getting technology use to the student level and providing staff development to teachers so they can effectively integrate technology into the curriculum. They also indicated that having a positive effect on student achievement was connected to this.

The instructional technology specialists are involved in curriculum work through activities they complete within the context of their department (in the role of instructional technology specialists) and through activities outside the department when they are acting in a role as instructional support personnel. As the data from the shadowing, interviews, and focus group showed, working with teachers and the technology portfolios, dealing with resources, and planning and implementing different forms of staff development are all curriculum work that has the instructional technology specialists working in the context of their department and acting in the instructional technology specialist role. The data also showed that attending meetings of the Joint Department Leadership Team, content area teams, School Priority Teams, and Disciplinary Literacy Teams, and engaging in tasks with other district personnel on those teams are activities that have the instructional technology specialists involved in curriculum work outside of their department where they are acting in an instructional support role. Even though they seem to play a dual role in the district, both roles are engaged in curriculum work.

Successful technology integration is a complex endeavor based on varied factors at the teacher, school, and district level. “Technology integration is organizing the goals of curriculum and technology into a coordinated, harmonious whole. True integration comes when students learn through computers, not about them” (Dockstader, 1999, p. 73). We need to close the gap that currently exists between technology and curriculum, so both are seen as working towards the same outcome of higher student achievement. Therefore we must understand how technology relates to curricular goals and how its use supports the curriculum. To do that, we must also understand how the jobs of those charged with instructional technology work and those charged with curriculum work intersect and support each other. As this study has shown, different personnel in school districts can be charged with curriculum work and with instructional technology work. In order to successfully integrate technology, these two groups of people need to be working together on the same goals and in close proximity to each other. Perhaps they even need to be the same people—curriculum workers who are also well-versed in instructional technology or instructional technology specialists with curriculum backgrounds or training.

Curriculum work is seen as important because it is related to test scores and student achievement. Instructional technology work is frequently not seen as important as curriculum work because the connection to curriculum work is not recognized. If instructional technology work is recognized as curriculum work, and instructional technology specialists as curriculum workers, then more significance will be accorded to instructional technology work and instructional technology specialists will be seen as more important. As a result, integrating technology into the curriculum will be more effectively accomplished. Perhaps then, the promise of transforming teaching and learning through the use of technology will be realized.

## **BARRIERS AND DISTRICT ORGANIZATION**

Unexpected findings from the study revealed several barriers to getting work done, as noted by the instructional technology specialists. There were communication and relationship problems between the instructional technology specialists and the district curriculum workers, accountability issues for teacher technology portfolios and technology integration in the schools, leadership issues with regards to technology, and issues arising from a lack of time to work with teachers in the schools.

Most of the barriers identified by the instructional technology specialists are rooted in the organization of the district. Because the instructional technology specialists were not in the same department as the curriculum workers, and they had different supervisors, there were communication problems and sometimes problems in the relationships between the two groups. This organization also put the instructional technology specialists and the curriculum workers on different hierarchical levels in the district with several layers of personnel between them. Their supervisors were not on equal footing in the district's organization either. This has several implications. First, district administrators will probably assign more importance to the work of the supervisor who is higher in the organization, thus positively affecting how the work gets done and how problems get solved. Second, the supervisor who is lower on the organizational chart will have to go through more layers of bureaucracy to get problems solved, programs approved, and tasks accomplished. This could serve to hinder the work of that department.

Because the instructional technology specialists are in the same department as Media Services and the computer and network technicians, they are not seen as curriculum workers. Therefore, they are excluded from decision-making in curriculum matters, even when they have been involved in projects with the curriculum workers or have gathered data for a curriculum-related project. Their work is frequently not seen as important because it is not seen as curriculum work, which is usually given high importance in a school district.

The district is structured so most of the instructional support departments are separated from each other; therefore, there are many competing demands on schools and on teachers for their time. Projects, programs, and requests for information are not coordinated between departments. Thus, it is difficult for the instructional technology specialists to find the time they need to work with teachers to integrate technology and document their portfolios.

## RECOMMENDATIONS FOR PRACTICE

It is clear from this study that we need to think differently about the work that instructional technology specialists do. They play a vital role in curriculum work in the district. The work that they do is, in fact, curriculum work. Their expertise in knowing how to support and enrich the curriculum with technology needs to be valued. We need to include them in curriculum making and curriculum implementation decisions. We need to conceptualize them as curriculum workers and accord their work the same importance that is given to curriculum work.

This can be facilitated in several ways. Instructional technology specialists could be physically located in the same department as the curriculum workers. The instructional technology specialists would then be able to work more closely with the curriculum specialists and the district's curriculum initiatives and programs, and serve as technology resource persons to the curriculum specialists. This would increase the instructional technology specialists' involvement in curriculum decision-making and thereby boost their effectiveness when working with curricular issues and programs in the district. It might also help the curriculum workers to become more knowledgeable about integrating technology into the curriculum, and about software and online resources that support the curriculum. Perhaps the time has come to combine these two functions into one position, insisting that those who are primarily trained in instructional technology also become curriculum specialists, and those trained in curriculum also become specialists in instructional technology. This, in turn, would impact programs in colleges of education that prepare curriculum and instructional technology specialists.

Documents produced by the curriculum workers to assist teachers in planning and implementing the curriculum should be integrated with documents produced by the instructional technology specialists to assist teachers in integrating technology into their curriculum. This would help close the gap between technology and curriculum. Including technology-integrated learning activities into curriculum guides, placing information about technology resources in the appropriate places in curriculum guides and in on-line resources would help teachers and administrators see the connections between technology and curriculum. Because what is tested is taught, this and similar activities would also put technology in the context of what is taught, lending credence to the use of technology. To accomplish this, however, would require instructional technology specialists and curriculum workers to work closely together. As noted above, this could be facilitated by the two working in the same department.

## RECOMMENDATIONS FOR FURTHER STUDY

In answering the two research questions presented in this study, additional questions were raised and unresolved issues relating to curriculum work were introduced by the study participants. Additional research would help further our understanding of the relationship between instructional technology and curriculum, and how to maximize the effective use of technology in curriculum.

It was noted in this study that the district organization was problematic for

the instructional technology specialists. An extension of this study would be an investigation of the relationship between school district organization and instructional technology and curriculum work that gets done. It might also be beneficial to investigate the understandings that district instructional personnel, school administrators, and teachers have concerning the relationship of technology and curriculum in an effort to structure meaningful and effective staff development.

In conjunction with the concerns about the effect of the district's organization on the curriculum work that the instructional technology specialists do, is the issue of technology skills versus technology integration. Investigating how district instructional personnel, school administrators, and teachers perceive the integration of technology, what it looks like in the classroom, and how it is achieved might help us understand how to get more teachers truly integrating technology into their curriculum.

This study also raises a question about what type of curriculum work the instructional technology specialists are doing. More investigation into the specific type of curriculum work that is being done might open the way for understanding more about the apparent disconnect between instructional technology work and curriculum work. For example, if instructional technology specialists are involved mostly in curriculum implementation, and curriculum workers are involved mostly in curriculum making, then this has implications for understanding the disconnect and how to remedy it.

In these days of *No Child Left Behind* and tight budgets, districts need to maximize student achievement and use resources responsibly and effectively. The districts need to know the most effective and efficient ways to implement curriculum as well as the most effective and efficient ways to support curriculum with technology. Considering instructional technology work as curriculum work and according it the same importance is one step toward meeting that goal.

### Contributor

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