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# Technology Facilitation in the Rural School: An Analysis of Options

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*As a part of their programs for education reform and opportunity, rural schools are applying desktop and telecommunications technology with increasingly frequency. The use of these technologies requires extensive maintenance and training. However, an era of downsizing and budget cuts leaves rural schools inquiring how they can best support the use of educational technologies in their schools. This study attempts to determine a practice-based solution to the rural school technology support question by surveying technology coordinators (n = 129) from the upper plains region of the U.S. Data on job responsibilities, professional training, training quality, and task proficiency is gathered. Analysis shows that heavy pedagogical and technical demands are placed on rural technology coordinators. The study findings strongly suggest that the preparation of the rural technology coordinator include a transition from the classroom, and, an advanced degree in a relevant program of study that includes network administration, computer hardware characteristics, multimedia production, instructional design, and leadership for school change and growth.*

## *Technology in Rural Schools*

It's a matter of fact. According to a report released by the National Center for Education Statistics (NCES, 2000), rural schools are more likely than urban schools to have computers in the classroom (87% rural versus 80% urban), and small schools are more likely than large schools to have computers in the classroom (87% of schools with enrollments under 300 versus 71% of schools with enrollments over 1,000). The NCES report also concludes that rural teachers who have computers at home are more likely than their urban and suburban counterparts to use the Internet to research and prepare activities and lesson plans.

In response to rural school reform initiatives, and to improve learning opportunities for their students, rural school leaders and advocates actively seek opportunities to support the use of educational technologies through involvement in state and federal initiatives such as e-rate program and technology challenge grants. Now, rural schools are among the most aggressive in employing wireless and video-based connectivity. Why the vigorous pursuit? Rural schools have viewed technology as an equalizer to the abundance of experiences, resources, and options urban and suburban students receive over their rural counterparts (Cahill, Hawkes, & Karim, 1995). Besides being able to help their schools overcome an inherent remoteness, rural educators see technology as a tool to improve the diversity of experience, develop leaders, provide national and global opportunities for students, and provide linkages and resources for the whole community.

To accumulate this technology, a number of state and federal programs have been implemented. Low cost solutions to technology purchases by manufacturers and the contributions by philanthropies have also assisted in the acquisition of technologies. These funding sources have helped with the one-time costs of computer hardware. External funding for teacher training in technology use has also been available. Not so abundant, however, are resources for maintaining and facilitating technology use in the schools, especially in an era of severe population decline in rural communities that finds schools taking radical cost cutting measures to balance their budgets.

Maintaining and facilitating technology use in schools involves a number of tasks and operations. The foremost of these tasks include network system management and hardware/software installation and maintenance. Maintenance at this level also requires servicing potentially hundreds of email accounts for staff and students and responding to other local area and wide area network issues. Weekly system backup has to be done as well as repairs and upgrades on serviceable items. Newer tasks in the coordination of technology use in the schools include

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satellite downlinking, interactive video system bridging, and video production, editing, and distribution (Carter, 1997). There's also help desk support, instructional design, professional development, and grant writing.

Also critical to the process of making the best use of technology in schools is the ongoing testing of technology products that might be used in the classroom. This testing includes identifying software programs that meet the learning goals of the curriculum, and identifying communication tools and hardware peripherals compatible with the current technology system (Rodgers, 2000). The latter task might be the most demanding among those required of technology system support due to the need to keep abreast of technological advancements in an extremely dynamic industry.

Ensuring good technology use in schools involves more than servicing networks and computers. Fully integrating technology into a school system entails assistance to those applying the technology toward learning outcomes. In the absence of this kind of coordination and assistance, major impediments to the effective use of technology in schools invariably emerge (Strudler, 1991). One type of assistance has an "on-demand" feel as teachers and staff solicit immediate input on making applications perform certain functions or when troubleshooting a critical problem. Much of this assistance takes the form of one-on-one consultation. A more systematic approach to assistance comes in the form of planned and ongoing professional development for technology use. Personnel in this capacity identify training needs of the school staff and develop programs and/or expertise required to address those needs.

Finally, a macro management function is necessary to fully integrate technology into the school system. This involves working with school administrators and boards to advance the use of technology in the school or district. Support at this level involves keeping records concerning networking accountability and evaluating the outcomes of technology use in terms of student learning and school system performance. Policy decisions are also required on such things as appropriate Internet use, hardware allocation, and technology budgeting. Certainly not the least of support functions is the tasks of identifying funding sources and competitively developing grant proposals that augment the technology budget.

*Support Strategies*

At one time, whoever knew the most about computers was tabbed for these technology facilitation tasks in the school. A decade or two ago, this involved classroom teachers who were drawn to computers as a means for providing experiential learning. What these teachers knew about computer and network maintenance was usually self-taught. Often, school librarians and media specialists were counted on for some technology support and coordination tasks (Everhart, 2000). Recently, administrators realized the effort involved in ensuring good technology use and having employed teams of full and part-time staff to provide that technology support. For instance, Greene County Schools in Greenville, TN, have a full-time network administrator for about half of their 15 schools. Remaining schools have a part time administrator with a substantially reduced teaching load. Assisting administrators at each of these schools are part time building level technicians and school web page developers. A district technology coordinator and an assistant technology coordinator lead the technology development program at Greene County schools.

Multiperson technology support teams are increasingly common in larger school districts. A familiar model involves a three-member team approach: a technology coordinator to lead the effort, oversee the budget, order equipment, keep abreast of technology changes, and communicate with administrators; a technical person to install the equipment, service it, troubleshoot, and answer application questions; and a technology curriculum specialist to help the staff apply the technology in meaningful and engaging ways (Reilly, 1999).

Multiperson technology support teams have proved valuable in ensuring efficient and effective technology use in schools. Unfortunately, sustaining these teams is costly and often beyond the financial reach of rural schools and districts. With limited resources, how do rural schools address their technology support needs when recent NCES data show that rural schools apply technology on a person-to-person basis with perhaps more fidelity, frequency, and rigor than their urban and suburban counterparts? The Northwest Educational Technology Consortium (2000) describes three primary ways that schools address technology support needs.

One option includes maintaining an information technology (IT) specialist on staff. These specialists generally have vocational diplomas and have taken a selection of operating systems, desktop hardware servicing, and networking courses. They generally leave their programs with certifications (A+, CCNA) nearly complete. A second alternative finds classroom teachers in the role of technology coordinators. These coordinators may be full- or part-time, and often gather their skills from a combination of state or school district supported training, higher education, or self-teaching. Schools also frequently rely on warranty provisions for a large portion of their technical support. Technology procurement bids often include service and maintenance support requiring vendors to train school-based personnel so they can do the vendor's job when the warranty expires.

Clearly, there is no "one size fits all" support solution for all rural schools. However, rural schools do have enough in common that by understanding what the technology de-

Table 1
*Personal Characteristics of Technology Coordinators*

| | Female | Male |
|---|---|---|
| Average Age | 41.7 | 42.2 |
| Average Salary | $30,631 | $35,586 |
| Gender | 45% | 55% |

velopment tasks and needs are, relevant support approaches can be recommended. To that end, this descriptive study will profile technology support staff and programs in rural schools and conduct analyses as to how that support might best be rendered.

*Method*

Following the path of previous research in exploring the development of the technology infrastructure in schools (Edwards & Morton, 1996; Martinez & Mead, 1988; McGinty, 1987; Moursund, 1985), we designed a self-report survey questionnaire. The questionnaire contained 26 items on four separate topics relevant to the school technology coordinator: *characteristics*, which sought information about the nature of the person holding the position of technology coordinator; *environment*, which inquired about the schools and operating systems the coordinators worked with; *responsibilities*, identifying the tasks that are part of the coordinators job; and *professional training*, formal and informal training in which the coordinator participated. Twenty-three of the items were of a structured format producing responses suitable for quantification and comparison. Three of the structured items contained between 3 and 12 possible stems. The remaining three questions were short essay, offering the respondent an opportunity to expand on their insights with fuller and deeper replies (Bradburn, 1983).

The survey was piloted with a small sample of school technology coordinators using a "think aloud" protocol. As the pilot respondents completed the questionnaire, they were asked to verbalize their thoughts. This process gave researchers the opportunity to see if the intent of the question actually generated the appropriate responses. Researchers revised the survey as necessary to appropriately address the constructs under question.

The survey participants came from a four-state area in the upper plains United States: northern Iowa, western Minnesota, northern Nebraska, and South Dakota. This area represents the primary service region of the institutions supporting this work. The states in this region are also unique by their larger than average proportion of rural schools and activity in school technology infrastructure development. Participants were identified through statewide school technology management listings and classified "rural" according to U.S. Census Bureau designation. Vocational, private, and specialty schools (i.e., language training) were not included in the population. Of the 268 surveys distributed, 129 were returned for a response rate of 48%. Items were coded and entered into Excel spreadsheets to provide general descriptive statistics and build tabular and graphical representations of the information. Data from the surveys were also inserted in an Access database software to efficiently retrieve information on relationships of different categories. From the spreadsheet and database, the data were converted into Minitab for Windows format for additional statistical analysis. Open-ended questions were thematically analyzed.

*Results*

*Personal characteristics*. Of the 129 respondents to the coordinator survey, 45% are female and 55% are male. The average age of the coordinators is 42, and the average annual salary for men in the coordinator position is $35,586, and for women is $30,631 (see Table 1). Data on age is fairly consistent with other national U.S. studies on technology coordinators. McGinty (1987) estimated the average age at 40 years, and Martinez and Mead (1988) put the average age of the coordinator at 39.3 years. Data on gender also roughly equals that of other U.S. studies as McGinty observed 48% of the school-based technology coordinators were female. The most notable contrast revealed by the personal data is the 16% pay disparity between men and women in the coordinator position. The earnings differential is striking in light of data indicating men and women come to their coordination role with relatively equal experience. Coordinator background information provides some explanation of the pay disparity. The fact that more women work in the elementary environment while men work in the secondary environment, and more men than women transition from a natural sciences teaching background into the technology coordinator position, indicates that men may have moved to the coordinator role from higher salary rank.

*Training and qualifications*. Although rural technology coordinators appear to migrate from diverse fields of study, the data show the predominant entry point into technology coordinating roles comes from those who held education degrees (see Table 2). That observation is consistent with McGinty's (1987) analysis of technology coordinator qualifications that finds 80% of coordinators holding a teaching credential. Advanced degree holders (all master of science) comprise 25% of the survey sample. The majority of coordinators hold bachelor degrees plus some graduate credit (54%), 18% hold a bachelor degree only, and 2% have an associate or technical degree. The data on postgraduate degree holders in this sample contrasts with

Table 2
*Technology Coordinators' Major Fields of Study*

| Discipline | Percentage |
|---|---|
| Education | 57 |
| Information Technology | 14 |
| Science | 13 |
| Other | 12 |
| English | 3 |
| Fine Arts | 2 |

Table 3
*Source of Training for Coordinator Functions*

| Training | Percentage | Quality |
|---|---|---|
| Self-taught or work experience | 65 | 2.84 |
| Inservice (workshops/conferences) | 26 | 2.99 |
| Advanced degrees | 9 | 2.86 |

that of the data collected by Martinez and Mead (1988) in which 60% of coordinators surveyed reported holding graduate degrees in computer science or a related field.

When rural respondents indicate the source of their training for functions performed as a technology coordinator, three diverse areas are cited: formal degrees, inservice training (workshops/conferences), and self-teaching or work experience. As Table 3 shows, the majority of a coordinator's development occurs through self-study and work experience. Less frequent sources of training resulted from inservice or advanced formal degree programs. When coordinators rated the quality of their training on a four-point scale (1-poor, 2-fair, 3-good, 4-excellent), the mean score of the combined responses indicates that inservice training was perceived to be of a higher quality than other modes (though this difference was not significant statistically).

Besides an analysis training for general preparation for coordination tasks, teachers were also asked about their preparation for network administration. Every coordinator in the sample indicated that they had some level of responsibility for administering the network operating system (Windows 2000/NT, Novell, Mac OS-9, Unix/Linux) in their school. Two thirds (66%) of the survey respondents reported taking network administration courses, and 17% held certifications related to network administration (CCNA, MCSE). The percentages of teachers receiving training in these various modes include: formal advanced degrees (43.4%), inservice (69.8%), self-taught (81.4%), and outside vendor training (10.9%). Of the four approaches to training, Figure 1 shows that higher education (graduate coursework) is perceived as highest in quality by respondents.

*Tasks and responsibilities.* Of particular interest to understanding how technology use is facilitated in rural schools are the functions of the rural technology coordinator and the time required to carry out these responsibilities. Through administration of draft and pilot versions of the survey, 12 general coordinator task areas were identified. For each area, rural respondents indicated the amount of time they allocated to each task over the course of a school year. From this feedback, a profile of rural technology coordinator work emerges. The task categories are listed below in descending order of time allocation (see Table 4).

As the data illustrate, about one quarter of the rural technology coordinator's time is dedicated to classroom teaching. Just over 70% of survey respondents indicated that they held classroom-teaching assignments concurrent with their coordinator responsibilities. Coordinators in sec-

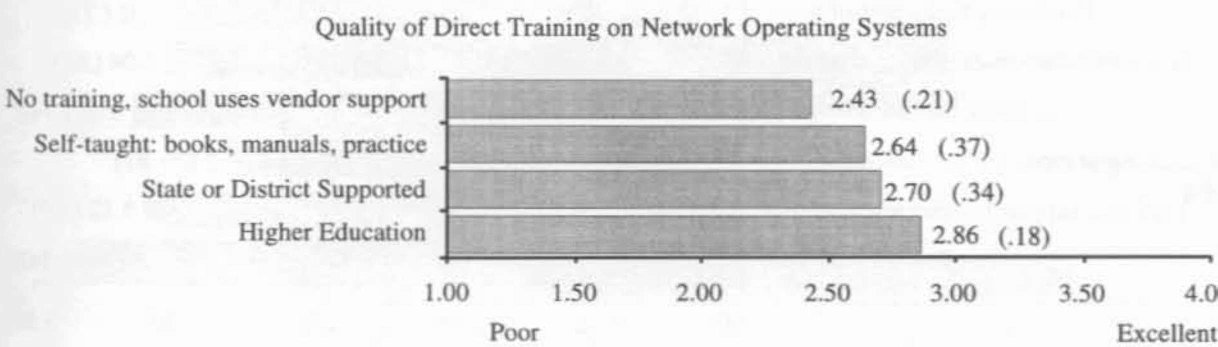


*Figure 1.* Coordinator perceptions of quality of training for network systems operation: Means (and standard deviations)

Table 4
*Allocation of Responsibilities for the Typical Rural Technology Coordinator*

| Task | Rural % |
|---|---|
| Teaching student course(s) | 24.3 |
| Technical support to other teachers/staff | 14.6 |
| Maintaining or repairing network/equipment | 13.2 |
| Installing hardware/software | 10.8 |
| Training teachers/staff to use technology | 7.3 |
| Purchasing hardware/software | 6.3 |
| Integrating technology into curriculum | 4.7 |
| Other capacities (committees, coaching, etc.) | 4.3 |
| Developing school/district policies for technology use | 3.8 |
| Serving on computer-related committees | 3.4 |
| Developing products for teachers or school (web sites, etc.) | 2.5 |
| Other | 4.7 |

ondary schools were just as likely to have teaching responsibilities as coordinators in elementary schools. In 30% of the cases, the teaching load of the rural technology coordinator exceeded more than 50% of their time. Other time intensive tasks for the coordinator involve what Marcovitz (1998) describes as the "nuts and bolts" of technology coordination (p. 1044). Those tasks include troubleshooting access and application problems for teachers and staff (14.6%), maintaining or repairing equipment (13.2%), and installing hardware and software (10.8%). Lesser, but still significant amounts of time are spent on staff development for technology use and curriculum integration and developing products for school use.

When rural coordinators used a four-point scale to assess their own proficiency on the tasks, item mean scores and accompanying standard deviations (in parentheses) in Figure 2 show they identified teaching as their top skill (3.34). The response is not surprising given that the large majority of these professionals acquired education degrees. Coordinators also rated themselves relatively proficient at hardware and software installation (3.16), providing technical support to teachers and staff (3.12), and helping teachers and staff use technology (3.04). Coordinators rated themselves least proficient at integrating technology into the curriculum (2.53), and at developing products for other teachers or the school (2.57).

### *An Urban Contrast*

As informative as the data are regarding the nature of technology facilitation provided by the technology coordinator, they do not tell us whether a different picture would

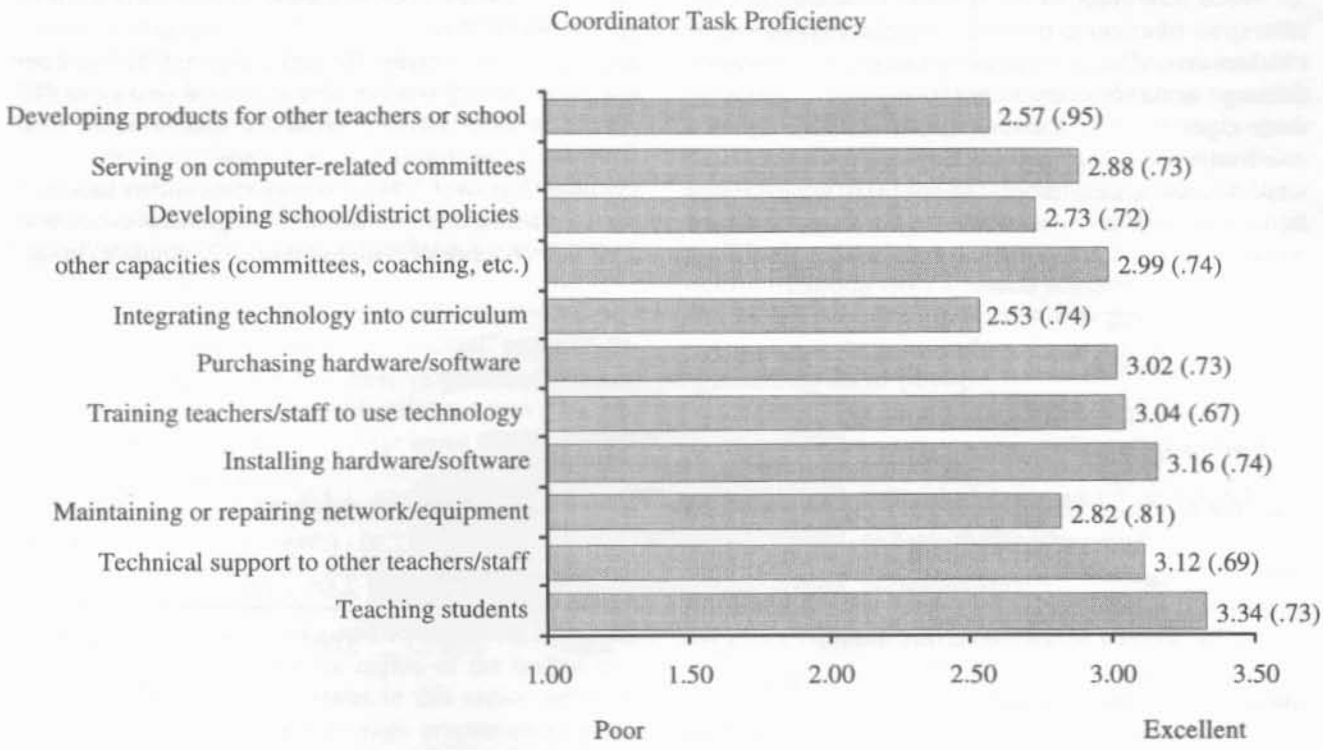


*Figure 2.* Coordinator perceptions of proficiency at technology support tasks: Means (and standard deviations)

Table 5
*Urban to Rural Technology Coordinator Contrast on Personal Characteristics*

| | Rural | Urban |
|---|---|---|
| Average Age | 42.0 | 42.5 |
| Average Salary | $33,109 | $32,250 |
| Male—Female | 45—55% | 63—38% |

emerge from a decidedly nonrural sample. Because data collection methods targeted rural schools, an adequate urban sample is not available for comparison. However, data within the same geographic area was identified on eight urban school locations, and we consider these data here for illustrative purposes. These data came from coordinators at large school districts attending a statewide symposium in educational technology in which the researchers participated. The contrast in sample sizes notwithstanding, a rural/urban comparison on a few key issues proves informative.

Data on age and earnings are fairly equivalent between the rural and urban respondents. However, as Table 5 shows, a much higher proportion of men than women coordinate technology programs in urban than occurs in rural schools.

When we consider rural/urban differences in sources of training, an interesting distinction emerges when support for inservice development is contrasted with coordinator counterparts in the more urban setting. Coordinators from both rural and urban schools appear to receive frequent financial support for attendance at conference workshops. However, the amount of support for rural coordinators is nearly triple that for large municipality coordinators. On average, the district provides over 70% of their travel, registration, and tuition for training or other external sources ($t = 2.80$, df = 67, $p < .05$; see Figure 3).

The nature of technology coordination tasks and the frequency with which they are performed are familiar to rural and urban coordinators alike. However, it is interesting to note that three of the eleven task areas occupy significant rural/urban differences in coordinator's time. As Table 6 shows, rural school coordinators appear to spend more time teaching courses and installing hardware and software, and a lesser amount of time developing school and district policies for technology use than urban coordinators.

This data on urban schools suffers as an equivalent data set to the rural sample. However, they suggest qualitative differences in the in the role and preparation of technology coordinators from the rural to the urban environment. A research design focused on these comparisons will be an important next step for research (and researchers) in this area.

*Discussion*

The data presented here provide a glimpse of the form and function of the rural school technology facilitation. Using self-report data gathered from technology coordinators at 129 schools in the upper plains region of the U.S., we found that the vast majority of schools designate a technology coordinator to address many of the functions of educational computing and technology use. Age and gender-wise, rural technology coordinators are much like their counterparts as described in earlier studies among different populations. Though little data are available on salaries for these professionals, it is safe to say that the rural coor-

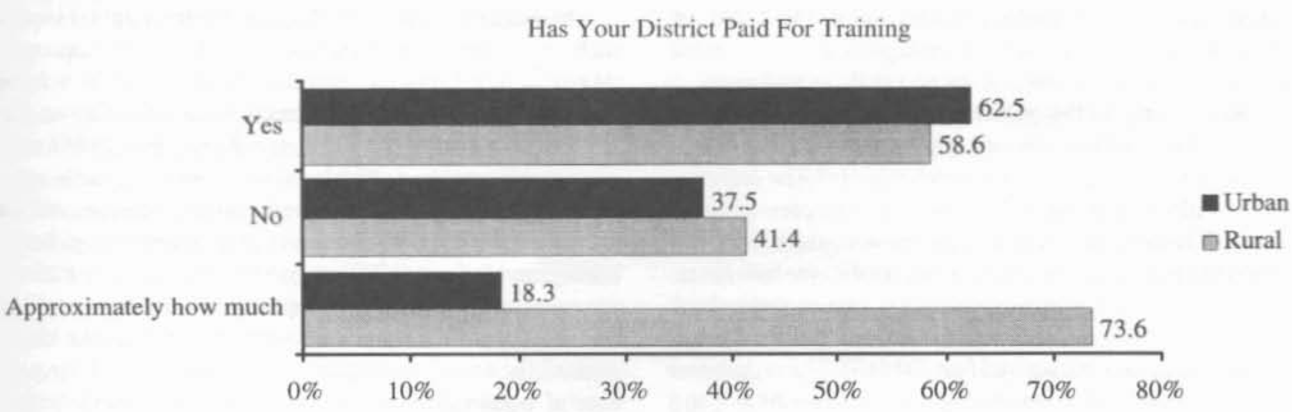


*Figure 3.* Frequency and source of support for inservice coordinator development

Table 6
*Key Rural/Urban Task Differentials*

| Task | Rural % | Urban % |
|---|---|---|
| Teaching student courses | 24.3 | 7.6 |
| Installing hardware/software | 10.8 | 3.4 |
| Developing school/district policies for technology use | 3.8 | 15.0 |

dinators examined here earn a modest sum for their services. Yet, men earn significantly more than women even though they appear to serve in comparable roles with equal experience. Unlike their counterparts in larger more populated areas, rural coordinators are not as likely to have advanced degrees in technological fields. Though the evidence suggests that coordinators do find advanced degree programs and additional coursework in higher education helpful, access to these programs and courses may be difficult to attain.

Those who have transitioned into the coordinator role from other disciplines have found graduate level courses and inservice workshops and conferences helpful. Additionally, support from the state and district for participation in workshops and conferences has been substantial. Despite the formal training rural coordinators have received, many suggest that deliberately or by default, the majority of their skills are self-taught and refined by experience.

This study indicates that rural technology coordinators feel somewhat competent at their responsibilities, though often feeling overwhelmed. Still, the data suggest there are some deficiencies in their preparation. For example, helping teachers meaningfully integrate technology into their curricula has proven problematic for our sample of rural technology coordinators. The difficulty of technology integration into the curriculum may merely reflect how little educators know about quality use of technology for teaching and learning. Technology integration is a task that we know requires equal parts of pedagogical and content knowledge and motivation on the part of the coordinator.

Refocusing on the critical question that this study set out to explore, what is the optimal approach to addressing technology support needs for rural schools? The technology coordinator is central to any support plan in rural schools. To understand critical coordinator skills sets, it is useful to review the survey data on coordinator task areas. This review involves categorizing the eleven technology coordinator task areas into one of three domains: pedagogical, technical, and managerial (see Table 7). These domains better typify key roles required of the rural coordinator and make the identification of relevant skills more evident.

The pedagogical domain refers to the knowledge and understanding required to engage students in meaningful learning experiences. Expertise relevant to the pedagogical domain includes instructional design, disciplinary content, instructional sequencing, and the application of learning strategies and subsequent assessments. Coordinators also bring instructional skills to bear on the design and delivery of workshops on technology integration and productivity tools use for teachers and clerical staff. Purchasing hardware and software is considered pedagogical because of the knowledge required to know if and how hardware and software specifications address disciplinary learning standards for learners at various levels. Pedagogical skills are generally acquired in a teacher education program at accredited institutions and refined over the duration of a career.

Despite the many learning related tasks coordinators perform, the primary reason the pedagogical domain remains the largest task area is due to the need for rural technology coordinators to also teach students while carrying out coordination tasks. As suggested in the open-ended survey data, school administrators fund coordinators on a part-time basis due to limited financial resources. Rural schools need coordinators to teach. In only a few cases is having the technology coordinator teach a deliberate decision to put high technology functioning coordinators in the classroom as an example to other teachers of good technology integration.

The technical domain of a rural coordinator's work includes those tasks that see to the proper functioning of the network system, the computers at the end of the wires, and the peripherals attached to the system. The technical requirements of the job also necessitate coordinator's significant knowledge about the software applications. The technical tasks of coordination also include hardware and network maintenance and hardware and software installation. The technical expertise a coordinator provides often takes place at unplanned and unanticipated times and may comprise as much as half of a coordinator's time as Marcovitz (1998) also reports.

Managerial responsibilities involve oversight if issues such as the equitable distribution of equipment, appropriate use policies, and the ongoing evaluation of the school or district's technology infrastructure. In reflecting on the job of the technology coordinator, Moursand (1985) suggests that an emphasis be placed on managerial skills, specifically, the capacity for good communication and an intimate knowledge of the educational system. Berg, Benz, Lasley, and Raisch (1997) suggest that technology coordinators are responsible for expressing a belief in technology that leads to a "change in the very structure of our classrooms" (p. 16). Coordinators need to understand the process of organizational change to be able to work with a technology committee to facilitate long-range planning and identify professional development experiences that maxi-

Table 7
*Coordinator Tasks Reorganized by Functional Domain*

| Tasks | Percentage |
|---|---|
| Pedagogical | 42.6 |
| Teaching student courses | 24.3 |
| Training teachers/staff to use technology | 7.3 |
| Purchasing hardware/software | 6.3 |
| Integrating technology into curriculum | 4.7 |
| Technical | 41.1 |
| Technical support to other teachers/staff | 14.6 |
| Maintaining or repairing network/equipment | 13.2 |
| Installing hardware/software | 10.8 |
| Developing products for teachers or school (web sites, etc.) | 2.5 |
| Managerial | 11.5 |
| Other capacities (committees, etc.) | 5.3 |
| Developing school/district policies for technology use | 3.8 |
| Serving on computer-related committees | 3.4 |

mize investments in technology and teachers (Miles, Saxl, & Lieberman, 1988).

Technology Facilitation Endorsement Standards recently prepared by the International Society for Technology in Education (ISTE)[1] provide a useful contrast on the perceptions of technology coordination tasks reported in these data. The Standards are composed of six key areas in which candidates are to exhibit knowledge, skills, and dispositions equipping them to teach technology applications, demonstrate effective use of technology to support student learning of content, and provide professional development, mentoring, and assistance for other teachers who require support in their efforts to apply technology to support student learning. These standards correlate closely to the pedagogical and managerial tasks discussed in this research. The standards, however, do not fully appreciate the extent to which technical tasks are required of coordinators. This is especially true with those working as technology coordinators in rural schools who function in more full service technology support positions.

What strategies best facilitate the development of the rural technology coordinator? The optimal coordinator is likely to emerge from the teaching ranks because of the likelihood that they will be required to teach students while they also perform coordinator functions. Technical school graduates with network administration degrees may have the skills to maintain a network system and service computers and peripherals, however, they lack insight and experience in the unique K-12 educational environment and the instructional process. This is also likely to be a criticism of third party and vendor support. External support may be essential when coordinators lack the time and expertise to address difficult problems. External support, however, may become expensive and will fail to provide the "on-demand" and collaborative quality of development that teachers prefer as they attempt to integrate technology into their curricula (Hawkes & Wilber, 1999).

The data here strongly suggest that the rural technology coordinator transition from the classroom, preferably the rural classroom. Coordinators coming from the K-12 tradition are intimately familiar with the process of teaching and learning and have the trust and cooperation of their peers. To satisfy the pedagogical, technical, and managerial requirements that are expected of the rural technology coordinator, a focused but relevant program of study is necessary that includes but is not limited to network administration, computer hardware characteristics, multimedia production, instructional design, and leadership for school change and growth. Because of the advancement of distributed networks (web, room-based and desktop interactive video) in rural school settings, the rural technology coordinator should be exposed to opportunities that improve their skill in operating these distance learning systems, and more importantly, to use these tools as a medium for improving the learning experience. University graduate programs bearing these characteristics are likely to well-prepare rural coordinators for essential responsibilities.

Developing technology coordinators to serve as technologists, pedagogists, and change agents is a tall order. The bigger challenge may be in gaining convenient access to a program of study that fills that need. Current graduate programs in instructional or educational technology, computer science, or information systems are rarely compatible with the remoteness of rural environments. Of the distance degree programs available, most of which are in their infancy, cost may be prohibitive. It remains to be seen if distance technology can provide the quality educational experience and training that rural technology coordinators and other support staff need while remaining responsive to the unique status of these professionals.

Technology coordinators in the rural K-12 school environment play a key and multifaceted role in technology use and integration. This dependency on coordinators and their fixed position in the school culture certainly contrasts with the perceptions of technology coordinators of well over a decade ago who believed their role was transitional and projected they would be out of a job in 2-5 years (Strudler & Gall, 1988). Still, coordinators struggle to find their niche in schools, especially the rural school. For example, staff-

[1]Final form, 2002. Retrieved from http://cnets.iste.org/ncate/index. html

ing information provided in district profiles in South Dakota lists data on schools administrators, teachers, and other school service specialists (counselor, librarian, psychologist, speech/language pathologist), but no line item data exists for the technology coordination/facilitation role. While schools work to institutionalize the technology coordination function, this study offers a descriptive theory of rural technology coordinator development based in the practical experience of coordinators. The insights and experiences of rurally located technology coordinators provide a basis for understanding the technology support needs of rural schools, and what must be done to address those needs. The proper preparation and support of rural technology coordinators will likely result in technology facilitators who will ". . . build commitment [to change and innovation] early and maintain it through constant encouragement; . . . bridge outside expertise and ideas and link resources and expertise within a district; and trouble-shoot, helping teachers solve problems and maximize their efforts" (Loucks & Zacchei, 1983, p. 29).

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