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Bringing the Community Along: A Case Study of a School District's Information Technology Rural Development Initiative

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We draw on interactional community theory to analyze the relationship between information technology and local development through a case study of a geographically isolated and economically disadvantaged rural school district. This district has used state-of-the-art information technology infrastructure in a broad-based community and economic development effort. We assess community outcomes across three dimensions: educational improvement, community identity, and economic development. We find that this effort has had significant positive effects on the first two dimensions, but economic impacts have been far less pronounced, raising questions about telecommunications technology as the new catalyst for rural economic revitalization.

Over the past 3 decades, economic globalization and advances in communications technology have spurred profound changes in local communities. With diminished transport costs, instantaneous communication, and increasing capital mobility, businesses can make locational decisions that were impossible just a generation ago. This new footlooseness means that even small differences in wage levels and environmental regulations can be decisive factors in the location decisions of firms.

Rural communities have been especially hard hit by these changes. Manufacturing, which is still the most important source of income in rural America, has steadily declined over the past 2 decades with losses concentrated in traditionally rural industries like wood products, textiles, apparel, and leather (Wilkerson, 2001). In the wake of recent trade agreements and tariff reductions, many industries have moved to foreign countries where wage structures and lax environmental standards make production costs much lower than they are in rural America.

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Shrinking economies are coupled with shrinking populations as rural residents, often the "best and the brightest" leave rural areas in search of greater opportunity elsewhere (Lichter, McLaughlin, & Cornwell, 1995). In rural communities, where employment opportunities are especially limited, many youth feel they have no choice but to leave their home communities because of the lack of economic opportunities (Ferry, Shillenn, Smith, & Bell, 2003; Hektner, 1995). The pursuit of higher education and diverse post-college job opportunities frequently necessitate long distance moves, taking youth out of rural areas, often for good (Gibbs, 1998). As this process of uneven development gains momentum, many rural communities face serious threats to their social and economic sustainability (Gibbs & Cromartie, 1994; Harvey, 1996; Leach, 1999; Miller, 1995).

In this new reality, economic development has assumed an unprecedented level of importance. Especially in rural communities, development strategies have often been dominated by attempts to capture mobile capital, with efforts typically focused on attracting industrial and commercial establishments through tax abatements, infrastructure improvements, zoning changes, and other actions designed to maintain a favorable business climate (Logan & Molotch, 1987). Other communities have tried to become tourist destinations through the commodification of local cultural and historic traditions and the creation of new amenities and attractions (Bridger, 1996; Philo & Kearns, 1993; Zukin, 1991).

However, there is mounting concern that these strategies may only perpetuate dependency on people and organiza-

tions with no long-term commitment to the local community (Shuman, 1998; Williamson, Imbroscio, & Alperovitz, 2002). Scholars, policymakers, local leaders, and residents increasingly are calling for economic and community development approaches that lessen dependence on extra-local decisions, financing, and sources of income (Bridger & Luloff, 1999; Rainey, Robinson, Allen, & Christy, 2003; Shuman, 1998; Williamson et al., 2002). Technology will play an important role in new economic development strategies, and most analysts now believe that rural areas must become more fully integrated in the emerging global knowledge economy if they hope to thrive in the 21st century (Drabenstott, 2001).

For many communities, especially those in more remote locations, economic growth will be driven by small entrepreneurial manufacturing and service firms producing custom products for niche markets (Korsching & Allen, 2004; Lyson & Tolbert, 2003; Malecki, 1997). Beyers and Lindahl (1996) found that such jobs have made an important contribution to rural economies in recent years. Indeed, 40% of jobs in the export-oriented industries are held by "lone eagles" and "high flyers," which they define as sole proprietors and businesses with just a few employees. The success of these efforts will be closely tied to the availability and quality of local information technology systems (Cohen, 1995; McMahon & Salant, 1999). However, the current state and federal policy environment, as well as the high cost and lack of economies of scale in providing service, are formidable challenges in providing such systems in rural areas, particularly high-speed Internet connectivity (Parker, 2000; Strover, 2001).

In rural areas, schools may be in a strategic position to leverage the kinds of formal and informal community resources necessary to create favorable conditions for the type of local development described above. Rural schools are an important source of community solidarity, a primary node of social interaction and community reproduction, and often are the largest employers in rural areas. Consequently, educational leaders are particularly well placed to enhance local collective action (Bauch, 2001; Dewees & Velázquez, 2000; Merz & Furman, 1997; Starratt, 2002), and they can play a key development role by purposefully developing relationships among community actors and identifying shared interests across diverse segments of the community (Miller, 1995). As these connections are strengthened, we hypothesize that local capacity to enhance individual and social well-being will also be strengthened.

We use a case study of an economically and geographically isolated school district in rural Pennsylvania to examine the relationship between information technology access and community development. This district has implemented a multistranded and innovative economic and community development project, combining the development of the school district into a cutting edge showcase of instructional technology. Students are offered educational opportunities previously unheard of in resource-limited rural districts, with a broader goal of community development—enhancing both the integration of the school and community, and the economic development of the area.

One of the main ways in which the district has managed to leverage the resources to work towards this vision is through strong partnerships with community members and local civic and business organizations, as well as a commitment on the district's part to build school-community connections and ensure that the community shares in the benefits enjoyed by the school. While the primary goal of the district administration has been educational improvement, the assumption was that strong schools must be based on viable communities. In this rural setting, therefore, educational improvement and community development were viewed not as competing agendas, but as inextricably linked with educational benefits multiplied by community benefits.

We pay particular attention to the leadership strategies used by school and community leaders to mobilize formal and informal community assets. We then examine the effects on three key dimensions of community development: educational improvement, community identity, and economic growth and development. We then discuss what these efforts may mean for other rural schools and communities.

The Interactional Approach to Community Development

Definitions of community traditionally contain four elements: a locality, a local society, collective actions, and mutual identity. However, the economic, technological, and social changes of the last several decades have made each of these elements problematic. Community boundaries are no longer clear, extra-local forces drive many community processes, collective actions often express private rather than public interests, and identities are often tied more to special interests than to the local community. In short, the contemporary community is amazingly complex, "an arena of both turbulence and cohesion, of order and disarray, of self-seeking and community-oriented interaction; and it manifests its dualities simultaneously" (Wilkinson, 1991, p. 7).

Despite the fact that the local community may not be the holistic, integrated unit it might once have been, people who share a common territory tend to interact with one another on place-relevant matters, even as they participate in extra-local systems and networks. Locality-based interaction has not disappeared. To the contrary, it is still the defining characteristic of community: "Social interaction delineates a territory as the community locale; it provides the associations that comprise the local society; it gives direction to processes of collective action; and it is the source of community identity" (Wilkinson, 1991, p. 13).

We draw on the interactional approach to community development (Korsching & Allen, 2004; Wilkinson, 1991)

to explore the relationship between rural education, information technology, and rural economic and community development. The interactional approach emphasizes the ways in which the patterns of social interaction occurring between the various organizational and institutional spheres of local society help to enhance the capacity of communities to act in their own best interests. These spheres can be thought of as "fields" of social interaction that can be broadly classified into two types: social fields and the community field (Sharp, 2001; Wilkinson, 1991). Social fields refer to the activities and associations of local actors that are organized around particular interests or outcomes. Examples include local school boards, chambers of commerce, boards of directors for local nonprofits, and other similar groups. In each case the group comprises an association of local community members whose activities are oriented around a particular set of community concerns.

The community field, however, both cuts across and links these community groups, emerging as an expression of the common bonds of interest that result from locality-oriented social interaction. In this respect, the *gemeinschaftlich* community field may be understood as the "interaction among diverse social fields that facilitates community-wide awareness of local concerns and enhances the flow of information and/or financial resources" (Sharp, 2001, p. 406). The community field is therefore a critical part of the community development equation and an indicator of the "adaptive capacity of people who share a common territory" (Luloff & Bridger, 2003, p. 211).

From an interactional perspective, then, rural schools assume a special significance for community development. In rural areas, more than any other local institution, schools help to establish a shared local identity and set of interests for community members, building a sense of place critical for linking and mobilizing diverse segments of the community (Bauch, 2001; Wotherspoon, 1998). Although the mandate of the school is centered on provision of education, the reality is that rural schools take on multiple social, cultural, and economic development roles that are likely to only become more important as rural economies continue to change (Edmondson, 2003; Theobald, 1997).

Methodology

The principal data for our investigation come from 21 semistructured key informant interviews with school officials and community members. We identified our respondents using a snowball sample method in which we began with school district administrative personnel, whom we asked for contacts of people within the school and community who could provide important perspectives on the introduction of advanced instructional technology within the school and, further, the social, educational, and community development outcomes of high-speed Internet connectivity within the school and community. We also spoke with teachers, school board members, business leaders, planners, media, government officials, residents, and parents. In most cases, individual interviews lasted about an hour.

Interviews were transcribed and then coded using qualitative data analysis software. We coded for targeted themes, specifically school-level leadership strategies and collaborations related to the district's information technology initiatives, and community social and economic outcomes. We also identified and coded unanticipated yet recurring themes that emerged (e.g., those related to evolving community identity). Interview data were supplemented with field notes from classroom and school walk-throughs with administrators. We also examined local newspaper clippings concerning the school district's initiatives, as well as school brochures and other district-produced materials.

In addition to the interviews and observations, we mailed a survey to 75 local businesses and organizations that had participated in a school-based student Web site development program. As part of an upper-level Web technology course at the high school, students working under the supervision of instructors consulted with local businesses and organizations to create custom-designed Web sites which were then hosted for free by the district. The survey instrument was written collaboratively with the instructors, and the responses were then shared so that the instructors could receive feedback on the Web sites and determine whether updates were needed. The survey was mailed to every operating business or organization with a student-created Web site at the time of the study. Following Dillman (2000), we sent a prenotice letter to maximize survey response. We then sent the survey with a 2 dollar incentive, a reminder postcard, and a second copy of the survey to nonresponders. The final response rate was 69%. The survey instrument contained both close- and open-ended items, and was designed to be easily completed within less than 10 minutes. The survey asked respondents about basic structural characteristics of the business/organization, their assessment of the effects of the Web site on business/organization visibility, operations and sales, and their own use of the Internet at home and at work.

A Rural Community Struggles with Economic Decline

Ridgemont,[1] located in mountainous central Pennsylvania, is a geographically large district covering approximately 100 square miles and spanning two counties. The school building is approximately 4 miles from Coaltown (population about 5,500). The nearest major highway is a 45-minute drive over winding secondary roads. There is no local police force or cell phone coverage, creating both public safety concerns as well as communication challenges. Although

[1]All place names local to the case study are pseudonyms.

Ridgemont has historically been economically dependent on coal mining, only a few surface mining operations now exist. Jobs are scarce and most local workers who are not employed by the district make commutes of an hour or more. Census data show that per capita income hovers just under $13,000, and within the district participation in the school's needs-based federal lunch program was just under 50%, well above both the state-wide participation rate of 34% and the county rate of 36%[1].

The district has nearly 850 students, a figure that has dropped over time. While the community is frequently described by locals as "tight-knit," this cohesion is undermined by a slow but steady pattern of outmigration coupled with an aging local population. Administrative records reflect these trends and show the elementary school alone losing nearly 20% of its enrollments over the last 8 years. An elementary teacher, and herself a graduate of Ridgemont, explained, "It's not that people don't want to stay here. I think the people leaving are (those who) went on to further their education. There's not a lot of opportunity in this area after they further their education . . . so they have to move out of this area to actually find a job." Those who remain often do so in part because they lack the opportunities elsewhere, and stay despite the community's economic insecurity.

The Development of a High Tech School District

In 1996, Ridgemont was typical of many small, rural Pennsylvania districts in its access to technology. At that time, there were only 24 Apple IIe computers, there was no Internet access, and classrooms lacked even basic telephone connections. In the mid-1990s, the school board, seeing the examples of other schools in the region, decided to hire a director of curriculum and instructional technology in hopes that the new hire would use grant-writing activities to bring the school technologically up to date. Although not native to the locality, the new director worked quickly to forge formal and informal ties across the community. As a school board member told us, "he's a great networker. I mean, he loves to go and talk with people and he's fabulous at that. I always say he could probably sell snow to the Eskimos."

In addition to network-building, he also managed to convey a sense of commitment to the community and its children. "Everything that was happening in this school, he was here," another board member stated. "I guess I came to the resolution that he actually cared for all the kids. He spends more time here than he does at his own house, and when you see that kind of dedication, then you know that, okay, he's truly in this for the kids." In addition, he turned out to be an extremely aggressive and entrepreneurial grant-writer with a vision for creating a high-tech rural district that would not only increase the academic opportunities for students but also would bring the community along by developing a base for economic and community development. Able to mobilize both financial and human resources, he soon assumed the district superintendency.

Currently Ridgemont has about a 1-1 ratio of computers to students and a fiber optic and multimedia network housed within eight 80-gigabyte servers that turns the entire school into a high-speed wireless hotspot. In addition to computers in the classroom, there are eight computer labs and over 850 PCs, including four mobile wireless laptop labs. Technological progress has been matched by academic achievement. The district's test scores have met or exceeded the No Child Left Behind annual yearly progress requirements for the last several years, and the district has received multiple state- and national-level awards for its achievements in the areas of instruction and technology.

To expand these initiatives beyond the walls of the school, the district constructed a network of microwave antenna towers enabling Internet connectivity to subscribing homes in the community within approximately a 10-mile radius of the school. At present, almost 500 households in the district are connected to a wireless network at a minimum speed of 128K, a service provided through a private vendor for $11 per month (about one third the typical cost for such service). A portion of the subscription fee is directed back to the Ridgemont Education Foundation, which funds competitive minigrants to teachers, underwrites residential wireless Internet access to families of low-income students, and provides an annual scholarship awarding senior projects that explore the theme of "school and community."

Two contiguous districts have joined Ridgemont, and those school buildings are also now wireless hotspots, with their residents awaiting Internet connectivity. In the meantime, Ridgemont has formed a Rural Area Broadband Information Network, which ultimately will provide wireless connectivity to an additional 67 Pennsylvania districts. This has been accomplished through substantial grant-getting efforts at the district level, tapping both public and private sources and pulling in nearly $3.8 million in funding and resources from 1998-2003. These monies have meant that the district initiatives have had negligible effects on the local tax burden.

These efforts have all been dependent on strong partnerships among the school, community members, and local civic and business organizations, as well as on the district's commitment to ensure a community stake. In the following sections, we describe in greater detail the development of the district's initiatives and their dependence on, and strengthening of, formal and informal community networks. We then discuss the impact of these initiatives on educational improvement, community identity, and economic growth and development.

[2]Figures taken from the Pennsylvania Department of Education, Division of Nutrition.

Provision of High-Speed Wireless Internet

A local nonprofit organization, Ridgemont Industrial Development Association (RIDA), acts as a de facto chamber of commerce. The eight-person board has members with multiple overlapping commitments who serve in local borough councils, the school board, a county planning commission, and civic organizations (e.g., the Elks Club, the local museum board). RIDA proved to be a primary support for the initial efforts of the school district administration.

RIDA board members were well aware of the need for high-speed Internet service as well as the high costs many residents and businesses were paying for slow speed connections. The superintendent asked RIDA for, and received, a $7,000 loan to perform a feasibility study to determine how wireless service might be developed in the area. As a board member recalled:

> We graciously said yes, we wash our hands of this, here's your $7,000. It was sort of the thing "if you get the money, we'd appreciate it back, but here's your loan to help kick this off." Sure enough the site study came through. He got his [grant] to basically set up antennas in the Coaltown area and at our school. I surprised the group because [the superintendent] gave me a check for the exact amount with interest. That's the first time that the RIDA has been actually paid back by anybody who promised to pay them back for helping them out.

A wireless Internet provider based in central Pennsylvania was hired to design, engineer, and install the network. It subsequently opened a branch office within the district, moving into a vacant bank building.

Many observers argue that one of most significant barriers to Internet access in rural areas stems from the fact that people without access to Internet telecommunications are less likely to demand these services because they have not experienced the benefits firsthand. Further, this is thought to be especially true in rural areas with aging populations and lower levels of education and income (Rowley, 1999; Strover, 2001). In Ridgemont, however, the demand surprised both the Internet providers and community leaders. A community member recounted an open forum held at the school, where community access to broadband wireless was the topic of discussion:

> We had a meeting up there with [the Internet provider] and there were probably 600 individuals in the high school auditorium who wanted Internet access. . . . That auditorium was packed with people who wanted a high-speed Internet connection because a lot of them couldn't have dial up. [The forum organizers were] taken back by how many people came and signed up—they didn't understand that there was that much of a need. They were thinking they were going to get 150-200 people; when 600 people showed up and they all started writing out checks to get the service, they were dumbfounded.

Currently, along with the 500 households already subscribed to the network, another 1,100 have signed contracts and are waiting to be connected.

Building Linkages Between School and Community

Several important school-based initiatives have helped to link diverse segments of the community. One initiative is school-based Web design instruction. Started in 2002 with a $20,000 grant to purchase software, a digital camera, and a server, two high school teachers (one a RIDA board member) initiated a Web design course that is now an established part of the high school curriculum. Students consult with community businesses to design business Web sites, which are then maintained and hosted on the district's server free of charge. Local businesses benefit from Web site development and increased business exposure while providing opportunities for students to develop technological skills in community-based applications. Promoted in part by RIDA, 75 local businesses now have student-designed and school-hosted Web pages.

To ensure that low-income community members have access, computers that are phased out as equipment is replaced are sold at minimal cost to local residents. This not only affects access, but strengthens school-community connections. As one teacher said, "I think the parents are much more involved in their kid's education if by chance they have the opportunity to have that kind of technology in their home." Password-protected software on the district's server allows parents to log into the district and access their children's grades and assignments online, and e-mail replaces what many years ago would have been face-to face encounters when the elementary and high schools were still in separate buildings located close to the borough.

Plans are also underway to develop a school-based community recreational center and an area recreational commission, with the hope that this will further develop the social infrastructure and local amenities that would not only retain youth, but also attract families and business to the area. Further, the district has explored ways to organize adult education classes through the community center and develop job incubator programs. District administrators expect to break ground on district property, build a new facility, and pay for it entirely with external funding. Seen by the superintendent as helping to create the "catalyst that drives more people to want to come to this area," the community center is the next major project on the district's

horizon, combining educational improvement with community development.

Effects on Community Development

Three dimensions of local development emerged repeatedly in our interviews with community members: educational improvement, community identity, and economic growth and development. While the adoption of technology within the school has not been without its bumps, school employees and the broader community agree that the new technologies have provided dramatic educational benefits for students. "We're sheltered from the rest of the world," explained an elementary school teacher. "This IT stuff that we have going on here now is a window for the world that some of these kids would [otherwise] never ever see." The district produces cohorts of students for whom cutting-edge information technology has been a routine part of their academic experience and who, in many cases, have been able to directly apply their background and skills towards community-based projects that have clear, practical outcomes (e.g., the business Web design initiative). A teacher had this to say:

> I think that really we're a good model; you see people coming constantly. We've had people from Great Britain come and visit us two times now, and there are constantly principals and superintendents visiting. They come through the classrooms while we're busy at work. And, you know, they get to visit and view all that stuff, so I think we should be very proud that as a rural school district we can be a model for other districts.

Broader community-level impacts have also resulted from increased Internet usage and the rise in computer literacy. A local teacher described it as a feeling of "maybe we are in the middle of nowhere, but we have all this technology. Well, gee, look at us. We're not just hillbillies!" Many local residents also pointed to the wide recognition of their school, and how that has boosted individual and community self-worth. A school board member stated, "I think it is now getting to be a sense of pride here. Someone will say 'hey, [this district] doesn't have this or [that district] doesn't have this, buddy. You guys don't have this yet and we do.' I've heard people talk like that."

The more sobering litmus test concerns economic growth and development impacts. The larger community needed little convincing as to whether the school district should move forward with its technology initiatives, especially once it became clear that federal and state-level external grants were regularly rolling into the district and the local tax burden remained unaffected. While community access to affordable high-speed Internet was an important selling point, people in leadership roles in both the school district and community argued that these initiatives would also likely yield economic benefits in the form of job start-ups and firm relocations (see, e.g., McMahon & Salant, 1999). The district superintendent explained:

> I'd like to develop some type of an economic development incubator-type business for this area, because when you look at Harrisburg and all these places that have Internet high-speed bandwidth and they're charging really large sums of money, we have the workforce here. So all we'd have to do is get people to understand that rural Pennsylvania has a workforce, and all we have to do is have the jobs. Yeah, instead of outsourcing we should be insourcing. We should be bringing the jobs into the inside communities like this that have the workers who are displaced and can't find jobs and have to work at $5.00 an hour.

Ridgemont's leaders argued that the technology initiatives would provide a foundation for the area's revitalization. The creation of a high tech district with benefits broadly accruing to both school and community would produce a critical mass of technologically skilled people in conjunction with the development of a high-quality school district. This would help spur local economic development through entrepreneurial business start-ups and firm relocations (see Figure 1). Economic development arguments were also made, in part as a way of increasing the initial community support for efforts that many community members feared would lead to tax increases. It was understood that development would cause public service and facility costs to increase overall, but that development would also expand the local tax base and, thus, the availability of public revenues. Technology in the school combined with educational improvement would be consistent with the demands of standards-based reform, and would help make Ridgemont's graduates more competitive within a global economy. At the same time, the nature of the skill set, it was hoped, would make remaining local a viable option.

"What we're doing," explained the superintendent, "is having an effect on how the students feel about themselves." He continued:

> That self-esteem then is built up because they're able to do a Web site for a company in Connecticut, which means that kid can go anywhere. It doesn't make any difference where he's at. He can work from here, but he's doing Web sites for companies or he's doing Web sites for local businesses. The students are learning the skills that they need, that they can use wherever they go. If that's their field that they want to go into, then they've gotten some

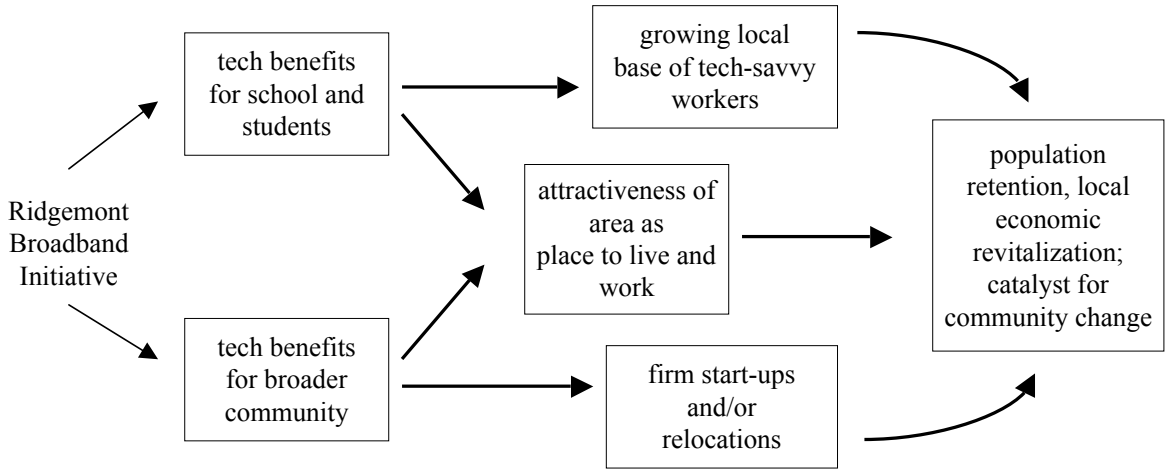

Figure 1. Ridgemont community and economic development model

> really good training for that. So I think it's a feeling, a different feeling that begins to develop.

While no one we spoke to had serious misgivings about the educational or the broader community-level social impacts of technology, the economic impacts of the rural telecommunications "build it and they will come" approach (Pigg, 2005) have yet to materialize in Ridgemont. As a teacher explained, "We were told to expect all kinds of changes in the economy and new businesses coming to the community. But so far I haven't seen it. It is still stagnant." When community members were asked about the community-level economic development effects, only relatively modest gains could be cited. Two Internet providers relocated branch offices to Coaltown. There have been anecdotal reports of a few "lone eagles" starting Internet-based business activities, including selling goods on eBay and an out-of-the-home billing service start-up. Internet access has also facilitated the operations of local businesses that can now use the Internet to do ordering of supplies and other business inputs.

Our survey of local businesses and organizations with student-generated Web sites illustrates the extent to which these smaller-scale businesses reflect the nature of local economic activity, with 83% of sales and services directed within a 50-mile radius and an average size of five full-time and three part-time employees. While 36% of respondents stated that the main factor in their decision to create a Web site came from the desire to support the activities of the Ridgemont school and students, opinions on economic impacts of the Web sites were clearly mixed, with many respondents noting no public response to the sites whatsoever. As one respondent wrote, "Never had a customer come in or call on the phone about the Web site. Never had a person even tell me they saw the Web site." Nearly three quarters of respondents stated that training on how to maximize the benefits of an Internet presence would be helpful and might increase business impact (see, e.g., Pigg & Crank, 2005), and only slightly more than one third of respondents believed that the Web sites had contributed to the growth of their business.

Other than the two Internet provider firms, there have been no business relocations to the Ridgemont Valley as a direct consequence of the district's initiatives, although an entrepreneur from outside the area recently bought a local hotel with the intention of refurbishing it and adding on a restaurant. However, this venture has no direct or obvious connection to the tech initiatives. While information technology and wireless high-speed Internet access may be an important and even necessary condition for local economic development, a school board member explained:

> Yeah, you have wireless Internet, high-speed Internet access, but you can't flush your toilet. You don't have community sewers in a lot of places. You don't have community water in a lot of places, so you don't have the infrastructure there that's needed to sustain first of all the individuals who are here, but then entertain new individuals who are to come.

None of this is to argue that the leaders in both the school and community believed that the introduction of technology alone would be enough to turn the economic tide. However, despite the dramatic technological developments within both the school and community, the economic benefits that can be gained from an advanced telecommunications infrastructure will likely depend on other structural changes and improvements. In disadvantaged, geographically isolated communities like Ridgemont, technological advances are just one step

in a larger process. High-speed Internet access is a necessary but not sufficient condition for economic development.

Conclusions: Lessons Learned

There has been considerable debate about whether the Internet has weakened community bonds by eroding face-to-face contact, undermining neighborhood ties and weakening civic involvement, or the Internet has created new forms of community through on-line contact, transforming and strengthening bonds of community in other ways (Hampton & Wellman, 2003; Scott & Johnson, 2005). In the case of Ridgemont, communal bonds have been strengthened through the creation of denser networks between school and community. Simultaneously, the district has increasingly been recognized as a site for cutting-edge information technology, with important implications for instruction and educational improvement and community development. The school district's information technology initiatives have contributed positively to its educational improvement goals for students and to strengthening the sense of community identity and cohesion.

In large part, this has been accomplished through local leadership strategies that have involved the purposive activities of community actors and organizations. In the language of Wilkinson (1972, p. 45) these activities "create or strengthen the relationships and patterns through which they seek to collectively express the range of their common interests and to solve their community problems" (see also Kirk & Shutte, 2004). Based on the assumption that educational improvement and community development are fundamentally related, the district administration consistently drew on the existing and nascent ties between school and community, from the provision of wireless Internet, to the business Web site development, to the community computer sales, and to the planning of an area recreational center. And it has done this in a way that consciously minimizes the income barriers to full participation of district residents.

Two important factors have also facilitated these efforts. First was the leadership role of the current superintendent and his administration. The superintendent's efforts were able to bear fruit because of his understanding of how to identify and tap into formal and informal community networks and build support for district initiatives. Further, he was tireless in his efforts to secure external resources and grant funding as well. In a low-resource, economically distressed district such as Ridgemont, the only way to move forward with these initiatives was to do it at little or no financial cost to those bearing the tax burden.

A second facilitating factor was that these efforts, unlike many community development initiatives, were characterized by an unusual lack of dissent and controversy, allowing the district and its community partners to proceed with minimal obstruction. This was the case for at least three reasons. First, educational improvement and low-cost community Internet access are issues that, at least in the abstract, inspire little opposition. Additionally, the grant-getting by the district yielding quick and visible results at no cost to district residents, which quickly stifled any initial second thoughts within the community. Third, within a low-resource community, concerted efforts were made so that the benefits of the initiative would directly accrue across broad swaths of the community, including those members who, for social or economic reasons, would ordinarily be excluded. In short, the initiative incorporated key elements including a longer-term vision and set of objectives, a commitment to building and strengthening linkages across the community field, sufficient in-flow of resources, and community support founded in large part upon a consistent practice of outreach by the district.

The absence of these elements has resulted in the downfall of other similar projects (Simpson, Wood, & Daws, 2003). Yet, while there has been marked development *of* community through these efforts, there has been markedly less economic development *in* community. This is not to say that there has been no economic effect, but the impacts have been slight and have not noticeably begun to bring about the structural changes required for an economic turnaround. In short, these initiatives, while a fundamental response to macro-level social, political and economic trends, at the same time have yet been able to alter the conditions that have led to the community's current economic and social dislocation. Additionally, these efforts have been *fundamentally* dependent on external funds and likely will be for the foreseeable future. If funding streams tighten or district leadership changes, these efforts clearly could be jeopardized.

In this regard, our case study supports the increasing recognition that while telecommunications technology is perhaps a necessary condition for rural economic development, it is not a sufficient condition (Glasmeier & Wood, 2003). Inadequate physical infrastructure, outmigration of young people, the lack of economic diversity, and limited access to health care and educational opportunities are all issues that must be addressed in rural development, in addition to broadband services. As Malecki (2003) argues, a more effective long-term approach to community development requires telecommunications in conjunction with enhancing the capacity of local firms, attracting entrepreneurs, retirees, and other groups because of local amenities and rural quality of life. Additionally, "attracting migrants should be complemented with education and training of people in existing businesses. Building networks to encourage interaction among entrepreneurs, and between entrepreneurs and other local leaders in education and government, rather than in isolation, will increase information-sharing that might not take place otherwise" (Malecki, 2003, p. 212).

We believe that this reading is consistent with the interactional approach to community development that is exemplified by much of what has occurred in Ridgemont. And, consistent with Malecki's analysis, there have been no immediate economic turnarounds coincident with a rural community's new access to broadband telecommunications. It may be too early to gauge the ultimate local economic impacts as a consequence of Ridgemont's telecommunications initiatives. However, by enhancing the structure of the community field and the connections across diverse segments of the community, development has occurred in other respects, notably in the areas of educational improvement, enhanced community identity, and the introduction of a telecommunications infrastructure accessible to all community members. While it has not yielded short-term economic development, it has created a groundwork that may incrementally make that development more likely in the longer-term. However, this case study raises serious questions for rural communities that pin their hopes on telecommunications as a quick fix for economic decline in rural communities.

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