

Introduction to the Research and Literature Review

This research sought to understand special education teachers' experiences and interpretations of the digital divide as manifest in the disparity of technology access and technology resources in schools for students in special education services. From this inquiry, emergent themes developed, marked by rich descriptions of the quality of barriers that special education teachers confront in attempting to integrate assistive technology, for students with disabilities, into academic instruction. Thus the principal research question for this study was: What are special education teachers lived experiences related to the digital divide?

The Merriam-Webster's online dictionary (n.d.) provides a general definition of accommodation as "something supplied for convenience or to satisfy a need" (§ 1). In special education services Smith, Polloway, Patton, and Dowdy (1998) delineate educational adaptations as "changes in the manner in which students are taught . . . they include changes in instruction, assignments, homework and testing" (p. 40). Within this adaptive framework of adaptation comes the concept of educational supports for adaptations such as assistive technologies.

Bryant and Bryant (2003) discussed the importance of assistive technology accommodations in the lives of individuals with disabilities by focusing on aspects of independence and academics. Assistive technology for individuals with disabilities is viewed as a means to achieve independent living that otherwise would not be possible without. Scherer (2004) noted the importance of the feeling of connectedness to academic and social aspects of school that students can achieve from effectively using assistive technology in and out of the classroom. Hasselbring and Glaser (2000) note that assistive technology "can enable even those students with severe disabilities to become active learners in the classroom alongside their peers who do not have disabilities" (p. 102). It is clear that assistive technology can prove to be an important mode of accommodation in an academic setting and thus it is of no surprise that AT has been written into several acts of legislation over the years.

School districts are required under law to provide appropriate assistive technology to students with disabilities when it supports their acquisition of a free and appropriate public education (Individuals with Disabilities Education Act, 1997). In order to support the inclusion and participation of students with disabilities in regular education classrooms, all Individual Education Plan's developed for children identified as needing special education services, must indicate that AT has been considered to provide meaningful access to the general curriculum (Individuals with Disabilities Education Act, 1997). More specifically, the Individuals with Disabilities Education Act indicates that assistive technology devices and services must be made available to a child with a disability if required as a part of the child's: (a) special education; (b) related services; or (c) supplementary aids.

Many assistive technologies are computer based; they necessitate access to computers to work. This access to technology infrastructure may be influence by the digital divide in whom gets access to technology in education. Hendrix (2005) noted that:

Computers are becoming common tools in schools, often viewed as a democratic panacea despite the costs involved and despite the fact that the majority does not have access to computers and/or the Internet; this creates a digital divide for students, in which some are 'more equal' than others. (p. 63)

Schools serve an essential role for students who access to computers from only one location. Although nearly all schools and classrooms have computers, most provide severely restricted access to the students and teachers (Bronack, 2006). In light that the digital divide has traditionally been associated with inequities in access related to race (Fairlie, 2004), gender

(Cooper & Weaver, 2003), and social class (Cleary, Pierce, & Trauth, 2006), this research attempts to observe the digital divide through the lens of disability.

Methodology

In order to identify the experiences of special education teachers in P-12 education, the researcher is not interested in confirming an existing theory, but rather, in the process of knowledge construction that can emerge from the interaction between researcher and participants. Therefore, a naturalistic or constructivist inquiry was determined to be the most appropriate mode of inquiry for this study. Further, because of the uniqueness of the participant's experiences within the school setting as both pre-service and in-service special education teachers, a qualitative methodology best served the purpose of this study by providing the researcher with "depth of meaning and richness of understanding" (Erlandson, Harris, Skipper, & Allen, 1993, p. 30) of the participant's experiences.

Participant Selection

This study analyzed the phenomenon of the digital divide experiences of pre-service and in-service special education teachers in P-12 education. In order to seek the essence of the experiences of these teachers, a sample of six special education teachers (three pre-service and three in-service) currently engaged in graduate studies at a university in northwest Ohio, and concurrently teaching students with disabilities in P-12 institutions were recruited to participate in this study. The number of participants selected worked from the premise that "sampling is terminated when no new information is forthcoming from newly sampled units; thus redundancy is the primary criterion" (Lincoln & Guba, 1985, p. 202). Thusly, when data collection had reached a point of saturation, termination of the data collection process occurred.

Sandelowski (1995) noted that "a common misconception about sampling in qualitative research is that numbers are unimportant in ensuring the adequacy of a sampling strategy" (p. 179). The researcher must be weary that sample sizes may be "too small to support claims of having achieved either informational redundancy or theoretical saturation, or too large to permit the deep, case-oriented analysis that is the *raison-d'etre* of qualitative inquiry" (p. 179). Thus, the determination of an adequate sample size in qualitative research is "ultimately a matter of judgment and experience in evaluating the quality of the information collected against the uses to which it will be put, the particular research method and purposeful sampling strategy employed, and the research product intended" (p. 179). As such, sampling for this study was terminated upon the sixth interview as the researcher believed that the quality of information collected had sufficiently met the purposes of the research intentions.

This research used a style of purposeful sampling referred to by Creswell (2005) as homogeneous sampling, principally due to the fact that the pool of participants held "membership in a subgroup that has defining characteristics" (p. 206). In the case of this research participants were pre-service or in-service special education teachers, engaged in graduate studies and currently working as teachers or performing student-teaching in P-12 schools.

Further, Lincoln and Guba (1985) explained that purposeful sampling has four characteristics: (a) emergent sampling design, (b) serial selection of sample units, (c) continuous adjustment or focusing of the sample, and (d) selection of the point of redundancy. In order to satisfy these requirements participants in this study were not identified *a priori* (as a result of a random selection). The School of Intervention Services (SIS), at the participating university in northwest Ohio, indicated possible participants at their institution. A list of potential participants was generated from class rosters of the academic years of 2004/2005 and 2005/2006 of EDIS 647, kept by the secretarial staff. The SIS administrative staff indicated possible individuals

using the following selection criteria. Prospective participants: (a) were currently enrolled in a graduate program of study in special education, (b) had successfully complete coursework in assistive technology for intervention specialists (EDIS 647), and (c) were currently working as special education teachers or engaged in the student-teaching portion of their degrees in North West Ohio. Prospective participants were contacted by the SIS secretarial staff by e-mail. Individuals whom were interested in participating in the study were asked to contact the researcher directly (by phone or by e-mail).

The SIS secretarial staff e-mailed a recruitment script to a total population of 78 students whom fit the recruitment criteria. Of these 78 e-mails sent, only one e-mail returned back from the institution's mail server as being undeliverable. The script was e-mailed out by secretarial staff on three separate occasions, separated by two week increments. Six individuals volunteered to participate in this study by directly e-mailing the researcher.

Data Collection

A face-to-face, individual in-depth interview was the main mode of data collection for this study. Lancy (1993) discussed the importance of obtaining information in the interview process, but simultaneously being wary of not constraining the interviewee's responses to a predetermined framework. By letting participants stray from guiding questions, the interviewer allows participants to possibly bring forth their conceptualization of the phenomena.

Open ended questions were used during the interview process in order to facilitate the exploration of the emic perspective. Patton (1990) stated that truly open ended questions allow the participants to respond in their own terms. Furthermore, he (1990) suggested that open ended questions do "not presuppose which dimension of feeling or thought will be salient for the interviewee . . . which] allows the person being interviewed to select from among that person's full repertoire of possible responses" (p. 296). Individual interviews were approximately 30-60 minutes in duration. The researcher requested permission to audio-tape the interviews to ensure accuracy of the participant's responses. Transcriptions were made from the audio-recordings which were, in turn, shared with participants through a member-checking process to ensure credibility of data. In this manner, participants reviewed both their constructions within the interview and the researcher's interpretations of their constructions and were asked to make commentary on the material. As Morrow and Smith (1995) pointed out, within this context, participants had the opportunity to become analysts of their own data.

Findings

Participants' Profiles

Six teachers participated in this study. They brought with them an array of experiences as they worked in different public and private schools in Ohio. Two demographics of teachers were sought as participants in this study; pre-service teachers, and in-service teachers. The following section provides a brief overview of the teaching experiences of participants in this study and observes the characteristics of the schools in which they taught.

Pre-service Teachers

Diana. Diana was a woman in her twenties who had never taught before her student teaching assignment. She spent 16 weeks of full-time placement in an elementary resource room that served kindergarten through fourth grade students with a range of specific learning disabilities and cognitive disabilities. Although she only provided services to primary school grades, her resource room was housed in a kindergarten through 12th grade building. She described the school's locale as rural and lacking technology resources.

Sally. Sally was also in her twenties and had never taught previous to her student teaching experience. She also spent 16 weeks in her placement, but described her classroom as serving children primarily with emotional disabilities who had parallel learning and cognitive disabilities. She described her class as being much like a little red schoolhouse where she taught several grade levels (first through fourth grades) all within the same classroom. She commented frequently at the incumbent stress this type of classroom set-up afforded. She described the school district as being rural but described the school's technology resources as abundant.

Mary. Mary described herself as a non-traditional graduate student, being older than most of her classmates. Marie was an education major nine years previous to this study and had returned to university to complete her degree. She said that she "did something completely different and then came back to education" (Mary, 193). She noted originally having the intention of being a general education teacher, focusing on older students but "came back to special education and the younger kids" (Mary, 195). She also noted that, by being from a major city in Ohio, that her experiences in formal education had been a "much more urban experience than what my student teaching was" (Mary, 196).

In-service Teachers

Elaine. Elaine was a woman who had been teaching for a total of twelve years. She had taught six years in regular education, teaching seventh and eighth grade science and social studies, and sixth grade math and language arts. She then switched to special education where she taught in emotionally disabled units for four years and two years in her current charge; in a learning disabled classroom. She described her setting as a small rural school where most of her students have learning disabilities and some having cognitive delays. She also noted one student as being emotionally disabled. Her normal caseload size was approximately 21 students in the resource unit. Her largest class was twelve students in which she taught the subject areas of English, mathematics and social studies. She acted in both a resource room and classroom teacher capacity.

Elle. Elle had been teaching for seven years. She noted "I started out daily subbing in [local] Public Schools . . . then eventually I got a long-term position as an LD [learning disability] tutor and then from there I went to being a resource room teacher, basically dealing with mild to moderate disabilities" (Elle, 2-4). She also disclosed that she "also had some shorter, long-term positions in more severe disabilities like [with] behaviourally handicapped children [or] children with emotional disabilities" (Elle, 4-6).

Amy. Amy had taught six through eight grade science and mathematics for two years in regular education in an urban catholic school and was currently matriculated in graduate studies and performing an internship in special education in a rural public school. She noted that her catholic school experience had catered to a "low socioeconomic clientele" where "almost all of our students were on some form of scholarship" (Amy, 19-20).

Even though she taught in regular education she noted having much experience with special education students; "we were the only school in the catholic system that dealt with students with special needs on a mainstream basis" (Amy, 8-9). She further noted that:

We had mostly students with learning disabilities but we also had a lot of attention deficit issues that were qualified under other health impairments and basically they were mainstreamed and then they went to the resource room as needed . . . but they were mainstreamed in my classroom for science. (Amy, 9-12)

In her current internship, at a public school, she noted having "four students that they call the MD class; multiple disabilities" (Amy, 27); "two boys that have both been diagnosed with

autism, one a more severe form than the other, of which I'm not sure how they're getting away with it because nobody there has the right qualifications for that" (Amy, 28-30). She observed that the majority of the students she currently works with had "been diagnosed with a learning disability" (Amy, 31).

Emergent Themes

Two themes emerged from the data that were relevant to the digital divide in special education: Access to Existing or Shared Resources and the Distribution of Resources. The theme of Access to Existing or Shared Resources was used to cluster responses that focused on such issues, such as time lags in having assistive technology resources set-up or installed in their classrooms, hierarchies to access, and sharing of assistive technology resources within schools. The theme of the Distribution of Resources focused on how materials were distributed throughout the school and particularly, the difference between materials provided to special education compared with regular education.

Access to Existing or Shared Resources

Some participants noted that they had little access to technology in their classrooms and to shared technology. Amy observed that there was not a shared laboratory environment in her school, and thus, had to use what little resources she had available to her in her classroom. Elle observed not even having basic resources such as appropriate lighting in her classroom: "I would love to have technology. I can barely get basic technology, like light bulbs" (Elle, 115-116).

Participants also noted stigma related to special education and gaining access to technology. Elaine noted "it's like pulling teeth to get the librarian to lend [technology] out. Especially, unfortunately to the special education classrooms because they see my students as fairly irresponsible and are afraid one of the kids will break it" (Elaine, 29-32). Of great concern is that stigma, of students in special education being perceived as irresponsible, may have led to a hierarchy of who gets access to technology in schools. Diana observed this hierarchy in stating:

Yes, they had a couple of computer laboratories, and they had projectors, and they had a couple of smart boards, and so they had a lot of technology but the access, we didn't have a lot of access to it. So that was a problem. It was all for more the general population and we came last in the pecking order for access to it. (Diana, 35-38)

Mary noted a similar belief that "the general education classrooms got up and running [with their technology] before we did. They were the priority to get access" (Mary, 28-29).

Elaine noted experiencing a similar 'pecking order' to gaining access:

There has been times I've had a schedule that my kids are going [to the computer laboratory] and then somebody else needed it more and they had more students to take and so the kids went down there and she sent us back to the room. I think that those resources [are important]. A lot of kids have computers at home, but only probably half of my kids do, so anything we do using assistive technology has to be done at the school just because they don't have access [elsewhere]. (Elaine, 188-192)

In this instance Elaine notes both a hierarchy to getting access as well as noting the importance of school provided access to children who may not have such resources at home.

Mary described her students' access to assistive technology as being non-existent. She observed that the computer lab scheduling at her school was:

Another thing where special education was different The other teachers all were in a lottery to pick their laboratory times. We did not have a laboratory time at all. Even

though there were blocks of times where we had consistent groups of students and we could have used it, we were not able to have a laboratory time at all. (Mary, 113-117) Elle described that the lack of assistive technology resources in her classroom had lead her to use computers in other teachers' rooms:

The kids have to go to different rooms to use computers because we don't have enough. So let's say the fourth graders are going to [use] computers, like there's twenty kids in a regular fourth grade [class], so it's there time to do [computer work] at 10:00 that morning, maybe two kids would go to room 104, two kids would go to room 105, four kids would go to room 106. Everyone is divided up. (Elle, 124-127)

In this case, access is dependent on other teachers' willingness to allow Elle's students to use their general technology resources for assistive technology purposes. This having to negotiation access to the technology resources shows a discrepancy in distribution and access to resources associated by a digital divide.

Distribution of Resources

The theme of the distribution of resources held, within it, several different facets of barriers to assistive technology integration. In general, participants believed that special education was "getting skipped over" (Amy, 234-235) in the distribution of resources. For instance, Elaine discussed the disparity of some teachers being very privileged in receiving technology while others went with little or none. She observed:

I do know that there's one teacher who has a smart board in our building; he teaches chemistry and physics. I don't know how he got it, whether it was some kind of grant. I'm not sure what the circumstances are other than he has it and nobody else, to my knowledge, has ever used it. (Elaine, 237-241)

This conception contrasts greatly with Elaine's depiction of what assistive technology her students have access to, in stating, "we kind of get the old [computers]. You know, when people retire theirs because they're so slow and then we get them. We would never get new laptops in a special education room" (Elaine, 44-46). In fact, Elaine noted a stigma to special education; that students are being *housed* rather than *schooled*, so the logic thus follows 'why bother providing resources?' She observed: "My boys just get called to haul the old stuff out, when, you know, that they figure we're not doing anything anyway so they ask the guys to haul stuff to the dumpster even though we have a class" (Elaine, 66-68). She clarified further, in noting that school staff believes that:

Other than looking up dirty pictures [special education] kids aren't going to use [computers] for anything anyway. So let's give it to the kids who are going to go on to write term papers or do something wonderful with their lives. So I think we're just kind of the bottom of the totem pole as far as what we get and it's unfortunate because I feel like my students probably have a greater need than a lot of the others. (Elaine, 266-271)

Mary described a very similar belief in a stigma associated with special education. When asked to speculate as to why special education was not provided with sufficient resources she replied that:

I don't want to think that it's a lot of things like they just don't care as much about those kids or they don't expected those kids to go out and be successful and give back to the school in ways that other kids can and that the parents aren't as influential maybe. No one ever made any comments. There were just things, like I saw things that other teachers got that special education didn't. At open house, very few people came down to the special education room. They went to their home rooms and stuff like that. (Mary, 127-132)

Elaine also noted a hierarchy, or pecking order, as to the distribution of technology resources. She observed:

I think we kind of get whatever's left over. The technology laboratory gets the nicest computers, followed by the library, followed by the regular [education] teachers that teach journalism, yearbook, or English and then when they get the new computers we are asked if we need anything that isn't being used anymore. (Elaine, 119-122)

Diana also noted a similar belief that a hierarchy existed in technology services in stating: "the general classrooms got first priority. I think our technology guy gave first priority to the general education classrooms and teachers . . . and when he had finished all of those, then he would address our issues" (Diana, 180-182).

Participants showed confusion and frustration at the disparity in the distribution of technology resources. Elle observed that, in her school, "some rooms did [have more resources]. I noticed some rooms had more computers in them but they were the regular classrooms. I didn't really understand that" (Elle, 23-24). Similarly, Diana observed the disparity in noting how non-special education classrooms continued to receive technology resources while her resource room went without: "They already had three or four [computers] and we still didn't have any" (Diana, 187). She discussed her frustration further in noting that "we were supposed to get a computer . . . in the beginning of the year we were supposed to get one but it never showed up" (Diana, 65-66). Elle noted her frustration in the following rationalisation:

It seemed to me that the people who needed the most access to technology, and new technology the most, had the least . . . They had more computers in the room and I didn't have a light bulb and I had children who had visual impairments and who could have used a computer to have things enlarged and read to them. I couldn't get a computer; I couldn't get a light bulb. (Elle, 29-33)

Elaine also described her frustrations at the disparity of the distribution of resources in her school in observing that:

People talk about how important [technology] is, you know, heading in the right direction. We're in a technological world and I kind of think 'put your money where your mouth is' because they tell us that we are supposed to do it and then they don't give us the tools to do it. (Elaine, 309-312)

From this logic, Elaine described an incident in which she tried to secure more funding for her students to provide them with more access to technology. She noted:

I started checking the assistive technology box [in their IEPs] because I heard that you can get more grants if you do. I was cautioned against doing that because then we [the school] would have to provide that [technology] for them [students] so I was told not to do that because then we're obligated to provide what they need. (Elaine, 234-237)

Elaine, in this instance, noted her belief in the importance of having access to assistive technology, but her beliefs and good intentions were easily quashed by her school administration's commitment to budgetary obligations.

In trying to procure more resources for her students, Elle started to inquire into funding with her school's administrative body. She noted:

I could never get a straight answer on [access to funding for AT] because I would talk to my special education supervisor because I knew that there had to be money coming in because my kids had special needs and so I knew they were getting certain funds from the state. I had kids who had autism and they got somewhere between \$20,000 and \$40,000 a year but when you would ask for the money to get even something as basic as a special

book or a reading series the money was never there and I know that I was not being paid \$40,000 per kid. Nobody could explain where the money was and I never got it. (Elle, 36-42)

Amy noted “I see differences” (Amy, 228) in the distribution of resources but she felt that it was not based on different expectations or attitudes toward students in special education services. Rather, she felt it was more about “[how] the school is trying to get the most bang for their buck” (Amy, 229). She noted that when purchasing assistive technology materials for individuals with disabilities, by nature, the technology must meet that individual’s specific needs. As such with “mainstream people you get a better price, you get more bang for your buck because you are not buying such a small quantity” (Amy, 232-233). In any manner, participants felt that assistive technology resources had not been managed and distributed in a uniform way throughout schools, with special education taking the lowest priority in the distribution.

Discussion

The discussion section addresses the principle research question for this study; what are special education teachers lived experiences related to the digital divide? The following areas are discussed, in terms of current research literature, to draw a context from the emergent themes as related to (a) technology infrastructure and (b) special education perceived as lesser education in schools.

Technology Infrastructure in Schools

Since participants in this research noted not being involved in the planning for technology in schools and not privy to budgetary information they began to harbour feelings that these issues were being hidden from them by administration and thus actively questioned the inequitable distribution of technology resources. They perceived that other professionals within their school buildings had been provided more resources which brought forth feelings of frustration and anger. Means (1998) noted that technology infrastructure is often envisioned as the first step in successfully integrating technology into instruction, and as such, “large applications of public funds are likely to focus on infrastructure improvements, often with a formula for ‘equitable’ distribution of resources across all districts, schools, or classrooms” (Means, 1998, ¶ 6). Means (1998) subtly observed that there may not be much equality in a formula of equitable distribution of resources. As such the disparity of the distribution of technology resources within schools may be seen as another of the “complex factors that shape technology use in ways that serve to exacerbate existing education inequalities” (Warschauer, Knobel, & Stone, 2004, p. 562).

This frustration, over the disparity of resources, lead participants to a state of learned helplessness, in which they felt that there was no longer a point in attempting to request or procure assistive technology as their voices would not be heard by administration. In light that participants could not secure school funds and procure dedicated assistive technology for their own classrooms for their students to use, they were faced with having to share the current technology infrastructure within their schools. Sharing technology resources was noted as being a difficult process for the participants. They noted that access to shared computer laboratories was highly competitive in schools and they had to rely on the willingness of other teachers and school personnel in order to provide access to their students. Williams, Coles, Wilson, Richardson, and Tuson (2000) noted a similar trend in studying barriers to Information and Communication Technologies integration in schools in Scotland. They observed that a substantial barrier to successfully integrating technology into general instruction took the form of obtaining access to shared technology resources. In the current research this access issue was

further confounded in that participants observed a hierarchy of access in which special education was perceived as last in the pecking order. This is a vivid example of how the disparity of access to technology resources helps fuel the digital divide in special education services. As Hendrix (2005) notes, within this example of technology access, some students are clearly denoted as 'more equal' than others. This leads to a discussion of the perception of special education.

Special Education Perceived as Lesser Education in Schools

Participants noted that they perceived that special education was treated as lesser education in schools. For instance, Elaine discussed that her students were frequently asked to haul garbage out of the school during instructional time by other teaching professionals and administrators. Similarly, this perception was put further askew by participants witnessing a disparity between both access to existing technology resources in schools and the distribution of new technology resources.

It appears that a certain stigma surrounds special education. Hiebert, Wong, & Hunter, (1983) observed that teachers had negative perceptions of, and low academic expectations for, adolescents with learning disabilities, and further that, parents of adolescents with learning disabilities had lower academic expectations for their children than did parents of normally achieving adolescents for theirs. This affect many stem from a larger stigma associated with disability in general.

It is commonly believed that "negative evaluations of people with intellectual disabilities abound in society" (Craig, Craig, Withers, Hatton & Limb, 2002, p. 61). Green, Davis, Karshmer, Marsh & Straight (2005) further clarified the issue of negative evaluations in stating that:

People with disabilities... are generally perceived to possess traits that others do not want to acquire. Others may consequently feel sadness and pity in the presence of individuals with disabilities and these feelings can further interfere with the shared meanings needed for ordinary social interaction. Seeking to avoid these feelings, others may even avoid individuals who possess the difference they dread. (p. 202)

As Baker and Donnelly (2001) noted, "such perceptions result in barriers that divide the 'worlds' of children with and without disability" (p. 72). Stigma also has a large effect on self-perception and academic performance. Children with less negative perceptions of their learning disabilities have been found to have higher achievement scores, perceive themselves more positively in terms of intellectual and behavioral competence, and feel more socially accepted (Rothman & Cosden, 1995).

Craig, Craig, Withers, Hatton & Limb (2002) write that "it is clear that stigma has a major impact on people with disabilities and that service-providers [such as teachers] ... can play a role in maintaining stigma either by collusion or denial" (p. 63). Carpenter and Morgan (2003) have suggested that "There are inbuilt opportunities within curriculum that allow schools to give positive support to the emotional well-being of young people with special educational needs." (p.203) and further that "these particularly rest in [the areas of] personal, social and health education and citizenship..." (p. 203). Eisenman and Tascione (2002) discussed the role of instructors in mediating a discussion on disability issues and social stigma in finding that "the mediating influence of positive adult voices and concerns about social stigma were evident in students responses, which prompted us to question teachers' and families' responsibilities for engaging young people in dialogue about special education and disability" (p. 35).

The stigma of individuals with disabilities as being perceived as less intelligent (Scherer, 2004), without academic prowess, and incapable of having success in life (Hiebert, Wong, &

Hunter, 1983) perhaps lead non-special education service personnel and administration to restrict access to technology support materials and infrastructure. This negative perception could be seen to act to widen the digital divide of technology access for individuals with disabilities in schools. This of course, as stated, is simply a possibility, as further investigation within participant's specific schools would need to be performed regarding perceptions of disability.

Implications for Professional Practice

In terms of removing barriers associated with the technology infrastructure in schools, and thus closing the divide related to access, teacher involvement seems to be of key importance. Research has indicated that by having teachers involved in the processes of planning, distribution, procurement, and funding related to technology in schools they obtain a sense of empowerment, control, and stake in their schools' functioning (White, 1992). By having teachers involved in the distribution of resources within schools, perhaps the issue of equity of distribution may become perceived as one of fairness and parity. By decentralizing the planning process from a centralized board office to individual schools, more space may be made for technology inclusion in plans related to school improvement, special education, curriculum, and professional development (Kleiman, 2006).

To change misconceptions associated with special education, schools must be willing to plan for inclusion. Baker and Donnelly (2001) observed that school policy and practices endorsing the principles of inclusion that emphasise equality, acceptance and valued participation may ameliorate school culture in this manner. A culture of inclusion may also be established through curricular means to sensitize staff and students, to both the unique needs of individuals with disabilities (Carpenter & Morgan, 2003), and the similarities they share with their peers (Ellis & Abreu-Ellis, 2006).

Conclusion

It appears that special education teachers interviewed in this study perceived the digital divide as omnipresent in school culture. It was manifest in staff and administrative attitudes and actions that served to stigmatize disability and actively hinder access to technology, thus providing little space for successful assistive technology integration that was computer dependant. School culture could possibly be ameliorated by teacher engagement in decision-making and planning for the equitable distribution and access to technology and by school administration and staff fostering a culture of inclusion within schools to quash the stigma.

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