Technology and Inequality Within the United States School Systems

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As technology becomes an increasingly important tool that students will need to succeed in life, it falls upon educators, parents, and society as a whole to make sure that students are being taught these skills. Through analysis of existing research, data, and publications, this article examines some of the reasons why not all students are afforded equal opportunities to acquire technology skills. Three main impediments to technological equalization in the United States school systems are examined: a) gender bias, b) geographical location bias, and c) racial bias. The overview afforded by this article attempts to show how these biases individually and together tend to work to prevent all students from receiving equal opportunities to learn and master the technological skills that will be required of them upon graduation from high school. Implications for the future action and research are discussed.

A mesure que la technologie devient un outil de plus en plus nécessaire à la réussite dans la vie des élèves, il incombe aux éducateurs, aux parents et la société en général de veiller à ce que ces derniers puissent acquérir ces habiletés. Grâce à l'analyse de la recherche, des données et des publications existantes, cet article examinent certaines raisons qui font que les élèvent ne reçoivent pas tous une chance égale d'apprendre ces aptitudes technologiques. Trois obstacles principaux à l'équité technologique dans les systèmes scolaires aux États-Unis sont étudiés: a) les préjugés basés sur le sexe, b) les préjugés basés sur la situation géographique, et c) les préjugés raciaux. Le survol effectué par cet article tente de démontrer comment, individuellement et ensemble, ces préjugés empêchent tous les élèves d'avoir une chance égale d'apprendre et de maîtriser ces habilités technologiques qui leurs seront nécessaires une fois leurs

études secondaires terminés. Nous discuterons des mesures à prendre et de la recherche.

Currently in the United States, inequality and bias are the norm in the distribution and use of technology in the educational environment. While some classrooms have a computer for every one or two students (Ringstaff & Yocam, 1994), other schools are lucky to have one or two computers for the whole school. The roots of these inequities are found in the divisiveness of American society as a whole over gender, race, and geographic location. While it is true that schools can succeed in educating without computers (Talbott, 1995; Elliot, 1997), the demands of higher education and the workplace increasingly require computer literate applicants. As Mohamed Mekkawi of Howard University states, educators "understand the importance of technology and how it can foster information empowerment for academic success and lifelong learning" (cited in Chepesiuk, 1998). Classrooms that can access well designed computer simulations of realistic tasks improve students learning and prepare them to apply their classroom knowledge to more complex workplace skills (Gatlin-Watts, Arn, & Kordsmeier, 1998). The challenge is to make this technology and its accompanying opportunities equally available to all students. This article will provide a brief survey and discussion of some recent research and thought in the area of computing technology and the discrepancies in its dispersion throughout the United States educational systems. In other words, in the prevailing educational climate, why is it that not all teachers, students, and schools have equal access to and use of computing technology?

Introduction

The phrase computing technology, as it applies to classroom use, deals with students having practical access to usable computers loaded with applicable software, connected to the Internet, and overseen by computer literate teachers (Maxwell, in press). If all of these conditions are met, students and teachers have the opportunity to take advantage and gain invaluable skills in technology use. However, Ingram (1994) states that up to this point computer-based technology has had no significant impact

upon education. Why is this so? Are teachers not being trained to be technologically literate? Is it as Mandinach and Cline (1996) assert that the fundamental classroom structure as a whole needs to be changed? Why as of 1995, were only 16% of teachers using the Internet (Faison, 1996)?

Bill Gates (1995) in his book *The Road Ahead* dedicates a whole chapter to the impact that computer technology has had upon the educational environment. He speaks about the benefits to teachers of sharing lessons and practices via networks, of children learning at their own pace by taking Internet based courses, and of whole countries incorporating computer technologies into their national curriculum. While these success stories may be true for the fortunate few, without the necessary resources to obtain the equipment, training, and political support many of this nation's central city and rural school districts will remain the "have nots."

This article will examine several facets of American society as mirrored through its school systems and how they appear to impact the equitable dispersion and use of computer-related technology. Sutton (1991) in a review of literature, showed that gender, race, and socio-economic conditions created inequities in access to computers thus "maintaining and exaggerating the existing inequalities in education"(p. 494). The primary issues to be addressed are gender bias, racial bias, and geographical bias. To a lesser degree age and socio-economic status will be discussed as contributing factors.

Gender Bias

Based on the findings of past research, it quickly becomes obvious that teachers face an extremely difficult task in bringing computing technology into their classrooms. Traditionally the fields of computer science and information systems have been male dominated. In fact, from 1980 to 1995 females receiving advanced degrees in information systems has only risen from 26.6% to 28.5% (Mangold, Bean & Cummings, 1998, p. 8). This research went on to point out that the odds of women receiving full professorships in computer sciences is relatively low. Therefore females entering universities seeking computer related degrees in education or any other field have few role models. Further, females and males tend

to learn and internalize computer use differently. Since males dominate computer instruction, it is likely that they will tend to teach computer use the way they learned it which is different from female learning methods.

There are also problems concerning gender differences in learning patterns related to computer technology. Research repeatedly shows females, particularly over the age of 50, suffer from cyberphobia (the fear of technology and computers) significantly more than males (Gardner, 1985; Corston & Colman, 1996; George, Sleeth & Pearce, 1996). Additionally, Corston and Colman (1996) found that females approach computers with greater anxiety and less confidence than males. They also found that females are slower to achieve mastery level skills in technology than males. The technology gender gap which is already evident by middle school widens as girls grow older – with girls showing less interest and dedicating less time to computer use than boys (Fiore, 1999).

While the comfort level associated with the use of computers can only come from hands-on experience, women are less likely than males to own and use computers as both children and adults (Comber, Colley, Hargreaves, & Dorn, 1997). As of 1996 only a few girls were enrolled in high school computer science courses, comprising less than 20% of those taking the Advanced Placement (AP) computer science test (Mather & Salpeter, 1999). Research by Dugdale, Dekoven, and Ju (1998) found that males with home computers and males without home computers tend to perform equally well in computer courses. However, females without access to home computers are outperformed by their female classmates who do have home computers. Further, the differences in the females scores were even more dramatic on test items requiring higher order learning skills.

All of these factors tend to greatly impair the likelihood of the successful implementation of technology in the classroom. With the majority of computer instructors being male, the majority of teachers being female, and teaching being an aging profession, it only stands to reason that the technology gender gap will continue to persist. Without increasing the home computer ownership and usage by females, especially as children, it is unlikely that the

pattern of technology use by the nation's educational practitioners will notably change in the foreseeable future.

Racial Bias

Christopher Columbus Middle School located in Union City, New Jersey is a school with a Hispanic student population of over 90%. The school in the late 1980s typified the endangered central city school with high absenteeism and dropout rates. By the 1990s these problems had been virtually eliminated, "the dropout rate and absenteeism are both almost zero, and the students are scoring nearly three times higher than the average for all New Jersey inner-city schools on standardized tests" (Gates, 1995, p. 194). A large factor in reversing this situation, was an initiative between the school, the community, and a telephone company. The parents and all classrooms were given computers and networked together to form an all inclusive technologically rich learning community. Unfortunately, Christopher Columbus Middle School is the rare exception to the rule rather than the norm.

Schools have come to mirror the social and economic inequalities of their societies, thus amplifying societal biases for future generations to the further detriment of the impoverished (Roblyer, Dozier-Henry, & Burnette, 1996). Central city and rural school systems are poor and less able to afford to build the infrastructure to equip their schools with current technology. Historically, as the Webb (1986) study points out "schools serving predominately Black and minority students – many of whom are economically disadvantaged – do not provide access to technology comparable to that provided by affluent schools" (pp. 4-5). Further, African-American households with students are less than half as likely to have a computer than the comparable Caucasian family (Hoffman & Novak, 1998). Tapscott (1996) points out that other minority groups such as Hispanics and Native Americans suffer from the same disadvantages. In fact, a study by the United States Department of Commerce (1997) found that while computer ownership for all races increased, since 1994 the gap between Caucasian and minorities' computer ownership and on-line access has actually increased.

Another strike against equitable technology implementation is that teaching is an aging profession with a disproportionately

high number of females. As mentioned previously, research has shown that these factors are indices of people who are the most likely to fear and least likely to use computer technology. The problem is further exacerbated due to households headed by people aged 25 years or less (of which a rapidly growing number are minorities) and those aged 55 years or older – these are the groups least likely to own computers (United States Department of Commerce, 1995). Thus those households most likely to have the youngest children and the group containing an increasingly large number of teachers are the very groups least likely to have a computer at home. In spite of these facts, parents of minority students (like all parents) increasingly expect that schools are making computers available to their children and that teachers are effectively using them in their classrooms (Russell & Russell, 1997).

The reality is that many of the Nation's school systems do not live up to even the minimum expectations of parents. Many minorities in the United States, including African-Americans in particular, have become disenfranchised with an educational system they feel labels and treats them as inferior (Poussaint, 1996). This message is reinforced when these parents and students see the opening of new suburban classrooms loaded with the latest technology while their central city schools are lucky to have one computer lab. The same is true for rural students. While it is true that library systems can serve as resource centers that can help equalize some of the effects of a lack of computers in schools and at home (Webb, 1986), this only serves to put rural students at a further disadvantage. When compared, 64% of urban libraries have Internet connections, while only 44% of rural counterparts can offer this service (Flagg, 1998). The divergence between expectations and reality are further skewed when the socio-economic, geographic, and gender factors that influence the successful adoption of technology are figured in. With the addition of these factors, a pattern quickly emerges. A high proportion of the United States school systems are in high risk categories for failure due to their inability to successfully implement technology and to impart this critical knowledge to their students.

Geographic and Socio-Economic Biases

The geographic location where students reside and the socio-economic status of students also influences the likelihood of technology access and use. In fact, these two factors often combine to further impede the equitable dispersion of technology within the nation's school systems. According to a study by the United States Department of Commerce (1995), poor school districts, such as many of those located in inner-cities and rural areas, are the last to receive telecommunication technology. Many states, such as Colorado, are just beginning to address the issue of "demographically diverse populations" and the inequity of access to information services (Alire, 1997).

Financial and geographic barriers often inhibit technology purchases, access, and accompanying professional training. Although findings conclude that computers can provide new learning possibilities for multicultural education (Freedman & Liu, 1996), the "have nots" persist. The center city, economically disadvantaged student becomes increasingly informationally disadvantaged – denied electronic access to information that many of the more affluent suburban students and teachers take for granted (Roblyer, Dozier-Henry, & Burnette 1996). Van Kemper and Ozuekren (1998) point out that while all poor suffer many of the same problems (i.e., political and economic isolation, higher drop-out rates, and increased teenage pregnancy rates), the urban poor are doubly burdened because their's is a position of concentrated poverty that by its very nature makes daily life a mere matter of survival. School apathy can set in when parents and students suffering from cyclical poverty come to view computers as merely a toy or a luxury that has little bearing on their day to day life. Under these conditions, potential resources for classroom computers and teacher training is often diverted to more mundane but essential programs that provide for students basic physical needs.

The rural teacher and student also suffer from a lack of technology. Many rural schools lack the necessary monetary resources for technology, and often lack an adequate telecommunications infrastructure (usually due to geographic impediments). Native Americans, perhaps the most isolated of all minority populations, have the lowest level of connections to even

the most basic technology enabler – the telephone. Nearly 25% of rural Native American households lack telephone service (Tapscott, 1996, p. 293). They, like other rural groups, often lack political clout and are under-served by the remote educational institutions located in the more populous areas (Vavrek, 1996). Thus, current technology is not a common commodity in many rural areas and schools.

Kellogg (1996) points out that similar to the central city, little money and few opportunities exist for teachers in rural areas to obtain staff development training in the use of technology. Werner (1994) states that relatively few teachers have on their own been able to develop the necessary skills needed to effectively use the Internet and computer technology. While some of these teachers are industrious enough to seek-out and obtain training on their own, what would be the motivation for others? They see the trained, technology adept teachers return to their schools and they realize these teachers still have little or no classroom technology available to implement programs using their newly acquired skills.

The economics of lower socioeconomic schools such as those often found in central cities and rural areas require their focus to be concentrated on meeting basic needs – whether the needs be physical (i.e., nutritional meals or safety from violence) or intellectual (i.e., writing a sentence or filling out an application form) rather than inserting fancy graphics into a research paper. Further, the problems are made worse due to the fact that the poverty in these areas tends to be cyclical. Because of their political and economic isolation, these groups are often not very capable of standing up for themselves and making their needs known (Van Kemper & Ozuekren, 1998). Therefore, these poor communities continue to suffer from inferior and inadequately equipped schools.

Discussion and Implications

What can be done to address these issues? Concerning gender, training needs to be redesigned to take into consideration the differences in learning styles of men and women. According to Corston and Colman (1996) women tend to master technology skills better in a same sex-group pairing. Although still

comparatively low, increasing numbers of females are entering computer technology fields and they are slowly gaining more university professorship positions (Mangold, Bean, & Cummings, 1998). As female technology instructors increase, they may serve as role models and pioneers in developing more gender appropriate training for future teachers. Finally, more emphasis needs to be placed on exposing female students to technology in the lower elementary grades. This would be a proactive means by which to lower the chances that females will later develop inhibitions such as cyberphobia. While as Mather and Salpeter (1999) conclude that "there is still a long way to go before the majority of female students enthusiastically embrace computer technology" (p. 59) a comprehensive effort that addresses all of the gender issues could lessen the technology gender gap.

As for staff development, George and Camarata (1996) have found that training must be highly individualized and flexible to effectively meet each teacher's individual learning needs. School systems must provide the needed technology and implement a comprehensive training program for all teachers. One such successful training program is Garavaglia's (1996) two phase training process, during which skills are first mastered and then maintained by on the job use. Following the comprehensive training, educators need to see the continuing, concrete commitment to and support of the program by the school administration (Maxwell, in press). This can be accomplished by offering continuing professional development and practical support.

Beyond appropriate training, adequate access to computers and compatible software is essential (Todd, 1993). In the realm of access, a re-emphasis needs to be placed on President Clinton's promise to rebuild the nation's infrastructure, putting an Internet connection in every school by 2000 (Flagg, 1998). The infrastructure will need to reach both into the heart of central cities and to the remotest of rural school districts. A reform design that addresses the need for technology rich learning environments is the New American Schools Co-NECT Model. This design uses computer-based information networks to prepare students to succeed in the workplaces of the future. From 1995-1997, eight schools in the Memphis City School District have selected and

begun implementation of the Co-NECT Model. Early reports from an ongoing study by the University of Memphis indicate that the program has met with initial success (Smith et al., 1998). However, in order for computer intensive reform models (such as Co-NECT) to succeed in the long run, a concentrated effort must be made for a national relocation of educational funding to provide the necessary means by which technology distribution can be equalized. As Webb (1986) concludes, "low wealth school districts and districts with high concentrations of minority students should be specifically targeted for the acquisition of learning systems and for implementation assistance" (p. 10). Through programs like this, teachers will have access to technology following their pre-service and staff development training and thus be able to become proficient, mastery level users. Finally, availability of adequate student access to computers will be the final ingredient necessary to make central city and rural school district's technology implementation a reality.

Success is possible. The Texas Supreme Court decision in Edgewood Independent School District vs. Kirby (1991) has set the precedent for future equalization of educational funding – where students in all counties rich and poor receive equal school funding. Mandates of this kind will make it possible for impoverished school districts to afford the costs of technology purchases and teacher training. Programs such as the one at Forest Glen Elementary School that totally immerse minority students into an environment rich in technology and practical application show promise of success (Elliot, 1996). The odds for success in implementing new programs increases even more when the special needs of the school community (such as bilingual communication, arranging meetings to fit parent's schedules, showing deference to cultural differences, etc.) are taken into account (De La Cruz, 1999).

School-business partnerships can provide innumerable benefits for schools and area businesses. From grade school through college "educators are an integral part of industry's ability to compete successfully in the new millennium [by] providing industry workers with adequate technology skills" (Schenk & Pick, 1998). Businesses can recompense schools by offering them the funding and equipment needed to prepare students to be their future

employees. While central city schools have by definition greater access to urban business centers, rural schools however may need to expand their search for business partners to the national level. Maxwell (1999) provides schools with methods and guidelines for creating mutually beneficial, symbiotic relationships with both community and national businesses. Other partnerships such as the ICONnect program have provided grants for pairing teachers with librarians in order to develop their Internet skills (Olson, 1996). Finally, Howard University's "Cyber Camp" focuses on introducing and training central city youth in the use of the Internet (Chepesiuk, 1998). These and similar type programs need to become the norm instead of the exception.

There are many implications for future research. Research needs to target the various groups discussed to find the best ways to make technology an integral part of their education and lives. Instructional methods conducive to the reduction of cyberphobia need to become the standard for teacher preparation programs. Meta-analysis of the existing literature and programs could be used to determine the best programs currently available. Young females need to be given encouragement at home and at school when it comes to computer and technology use. Research should be done to find the best methods for introducing females to technology. Comparative studies of adolescent females and males could yield additional information on why boys and girls interact and react to technology differently.

Future studies need to look into innovative ways to bring technology into the central cities and rural communities. State initiatives which put more technology in public libraries and on bookmobiles could help to offset some of the negative impact that students suffer who lack computers in school or at home. The creation of national initiatives that develop a funding pool or endowment that specifically targets making technology available to minority, central city, and rural youths beginning at an early age is key. Programs such as the one at Christopher Columbus Middle School or the Co-NECT Model could serve as national designs and be implemented in central city and rural school districts who are currently at a technological disadvantage. Once established, further studies should be conducted to determine how to make technology a permanent fixture for every step of a

student's educational career. Finally, the means for funding these changes and future technological advances need to be found in the public and private sectors.

Conclusion

The road to technological parity is not an easy one. However, it is one our nation's school systems need to travel. Schools have steered down difficult roads in the past only to finally turn the bend to success. As Tapscott (1996) asserts, "if there is access and if there is societal will for equity, technology can help to reduce gaps not increase them. But those are two big ifs" (p. 296). What is needed today is a concerted effort whereby parents and educators work together to eliminate these inequities. Parents and educators need to demand that the political powers provide every student in the nation with an equal playing field. This means that all students must be given the tools and training needed to succeed in today's technologically advanced world. By working together, we can all serve to help bring about the systemic reform that many of our neglected school systems sorely need.

REFERENCES

Alire, C.A. (1997). Ethnic populations: A model for statewide service. *American Libraries, 28*(10), 38-40.

Chepesiuk, R. (1998). Howard university library: African-American mecca. *American Libraries, 29*(2), 56-59.

Comber, C., Colley, A., Hargreaves, D.J., & Dorn, L. (1997). The effects of age, gender and computer experience upon computer attitudes. *Educational Research, 39*(2), 123-133.

Corston, R. & Colman, A.M. (1996). Gender and social facilitation effects on computer competence and attitudes toward computers. *Journal of Educational Computing Research, 14*(2), 171-183.

De La Cruz, Y. (1999). Reversing the trend: Latino families in real partnerships with schools. *Teaching Children Mathematics, 5*(5), 296-299.

Dugdale, S., DeKoven, E., & Ju, M. (1998). Computer course enrollment, home computer access, and gender: Relationships to high school student's success with computer spreadsheet use for problem solving in pre-algebra. *Journal of Educational Computing Research, 18*(1), 49-62.

Edgewood Independent School District vs. Kirby, No. D-0378, 34 Tex. Sup. J. 368 (1991).

Elliot, I. (1996). At home in a global village. *Teaching K-8, 26*(5), 34-38.

Elliot, I. (1997). A tight ship on a tight budget. *Teaching K-8, 27*(7), 34-38.

Faison, C. (1996). Modeling instructional technology use in teacher preparation: Why we can't wait. *Educational Technology, 36*(5), 57-59.

Fiore, C. (1999). Awakening the tech bug in girls. *Learning & Leading With Technology, 26*(5), 10-17.

Flagg, G. (1998). Sharp increase in Internet use at public libraries. *American Libraries, 29*(1), 11-14.

Freedman, K. & Liu, M. (1996). The importance of computer experience, learning processes, and communication patterns in multicultural networking. *Educational Technology Research and Development, 44*(1), 43-58.

Garavaglia, P. L. (1996). The transfer of training: A comprehensive model. *Educational Technology, 36*(2), 61-63.

Gardner, E. (1985). Human-oriented implementation cures phobia. *Data Management, 46*, 29-32.

Gates, B. (1995). *The road ahead*. New York: Viking Penguin.

Gatlin-Watts, R., Arn, J., & Kordsmeier, W. (1998). Perceptions and practices of multimedia integration into the undergraduate curriculum. *Journal of Education for Business, 73*(6), 376-378.

George, G. & Camarata, M. R. (1996). Managing instructor cyberanxiety: The role of self-efficacy in decreasing resistance to change. *Educational Technology, 36*(4), 49-54.

George, G., Sleeth, R.G., & Pearce, C.G. (1996). Technology-assisted instruction and instructor cyberphobia: Recognizing the ways to effect change. *Education, 116*(4), 604-608.

Hoffman, D.L. & Novak, T.P. (1998). Bridging the racial divide on the Internet. *Science, 280*, 390-391.

Ingram, J. K. (1994). A model curriculum to promote teacher-centered use of technology. *Peabody Journal of Education, 69*(4), 113-130.

Kellogg, D. (1996). *Getting rural teachers on-line with SLIP* [15 paragraphs]. ERIC Documents [On-line]. Available: Doc. No. ED 396 870.

Madinach, E.B. & Cline, H. (1996). Classroom dynamics: The impact of a technology-based curriculum innovation on teaching and learning. *Journal of Educational Computing Research, 14*(1), 83-102.

Mangold, W.D., Bean, L., & Cummings, M. (1998). A cohort analysis of the changing gender composition of MIS faculty. *Journal of Computer Information Systems, 39*(1), 7-13.

Mather, M. A. & Salpeter, J. (1999). Gender stats making news. *Technology and Learning, 19*(5), 59.

Maxwell, J. (1999). Forging partnerships: Schools, school libraries, and communities. *Teacher Education Quarterly, 26*(4), 99-110.

Maxwell, J. (in press). ConnecTEN training for teachers: A cautionary tale describing a statewide technology initiative. *Tennessee Education.*

Olson, R. (1996). ICONnect hands out mini-grants for Internet partnerships. *School Library Journal, 42*(4), 18.

Poussaint, A. (1996). Reaching all children. *Teaching Tolerance, 5*(1), 11-15.

Ringstaff, C. & Yocam, K. (1994). *Creating an alternative context for teacher development: The ACOT teacher development centers* (ACOT Report #18). Cupertino, CA: Apple Computer, Inc.

Roblyer, M.D., Dozier-Henry, O., & Burnette, A.P. (1996). Technology and multicultural education: The 'uneasy alliance.' *Educational Technology, 36*(3), 5-12.

Russell, G. & Russell, N. (1997). Imperatives and dissonances in cyberspace curriculum: An Australian perspective. *Education, 117*(4), 584-591.

Schenk, K.D. & Pick, J.B. (1998). A framework for successful partnerships between industry and academia. *Journal of Computer Information Systems, 39*(1), 65-71.

Smith, L., Ross, S., McNelis, M., Squires, M., Wasson, R., Maxwell, S., Weddle, K., Nath, L., Grehan, A., & Buggey, T. (1998). The Memphis restructuring initiative: Analysis of activities and outcomes that affect implementation success. *Education and Urban Society, 30*(3), 296-325.

Sutton, R.E. (1991). Equity and computers in the schools: A decade of research. *Review of Educational Research, 61*(4), 475-503.

Talbott, S. L. (1995). *The future does not compute: Transcending the machines in our midst.* Sebastopol, CA: O'Reilly & Associates.

Tapscott, D. (1996). *The digital economy: Promise and peril in the age of networked intelligence.* New York: McGraw-Hill.

Todd, N. (1993). A curriculum model for integrating technology in teacher education courses. *Journal of Computing in Teacher Education, 9*(3), 119-125.

United States Department of Commerce (1995). *Falling through the net: A survey of the "have nots" in rural and urban America* [On-line]. Available: http://www.ntia.doc.gov/ntiahome/falling thru.html.

United States Department of Commerce (1997). *Falling through the net II: New data on the digital divide* [On-line]. Available: http://www.ntia.doc.gov/ntiahome/net2/falling.html.

Van Kemper, R. & Ozuekren, A.S. (1998). Ethnic segregation in the cities: New forms and explanations in a dynamic world. *Urban Studies, 35*(10), 1631-1656.

Vavrek, B. (1996). A national crisis no one really cares about. *American Libraries, 28*(11), 37-38.

Webb, M. B. (1986). *Technology in the schools: Serving all students* [On-line]. Available: ERIC Document Reproduction Service No. ED 280 906.

Werner, J. (1994). Reaching out to the world: Training teachers to integrate telecommunications into special education classrooms. *Proceedings of the 14th Annual National Conference of the American Council on Rural Special Education* [On-line]. Available: ERIC Document Reproduction Service No. ED 369 595.

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