

Not Just an Access Issue:

Further Analysis of the Digital Divide from a Socioeconomic Perspective

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Abstract

In recent years, a concern surrounding technology access to historically marginalized populations, referred to as the "Digital Divide" (Divide), has surfaced. This analysis examines the Digital Divide from a socioeconomic standpoint, and discusses the effects of the Divide on students. Also addressed are the varying perspectives towards the Divide, current initiatives presently being taken to address it, as well as concerns with these initiatives. As a result of this analysis, questions still remain relevant to the Divide; more specifically, is it becoming more narrow, or is it not being addressed adequately? Government officials, private donors, educators, and others supporting initiatives to address the issue must continue to understand and address the Divide from multiple viewpoints as opposed to addressing the issues from only one, narrow perspective. It is also important to address issues related to the various individuals affected by the socioeconomic Digital Divide, and acknowledge the effects the solutions to these particular issues have on creating other, potential gaps. Questions for future exploration surrounding this on-going debate are presented.

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Introduction

In recent years, a concern surrounding technology access to marginalized populations, referred to as the "Digital Divide" has surfaced. The term "Digital Divide" (the Divide) has numerous meanings, and as a result of these varying definitions, there are multiple viewpoints towards the courses of action presently being initiated to address it. We often hear the phrases "bridge the Divide," or "close the Divide," to refer to the potential outcomes of these initiatives, yet many debate if this issue will ever be completely addressed. At the heart of the Divide debate resides issues surrounding access to technology (such as Internet access and software), particularly among traditionally marginalized groups, the role of teachers to successfully integrate technology into curriculum, available content which recognizes a diverse range of users, and how best to address these issues.

But what, exactly, is the Digital Divide? Korupp and Szydlik (2005) separate the Divide into two levels. The first level Divide deals with problems of access to computers and the Internet, while the second level focuses on user profiles of new technologies. Gorski (2003) defines the Divide as the difference in access rates among one or more groups while Salinas (2003) expands on this particular definition by listing specific technologies these groups have limited access to, including electronic information and communication tools, such as the Internet (Salinas 2003).

Many believe, however, that the Digital Divide no longer exists, while others maintain it is expanding. Often this disagreement arises from the lack of consensus on how the Digital Divide is defined (Salinas, 2003), and results in questions about this issue which do not have a clear answer. Several reoccurring questions which have arisen as a result of this on-going debate focus on who exactly should have access to the Web, as well as issues surrounding the impact technology has in addressing basic educational needs (Moss, 2002).

There are also varying viewpoints as to who, in particular, is included in the groups which are affected by the Divide, and it is difficult to ascertain a clear answer from available statistics, since there is significant overlap in demographics among marginalized groups. For example, one could make the assumption that the Divide is a race issue; however, research indicates that there is a significant lack of internet content of interest to blacks, as well as a lack of exposure in everyday life in predominantly low-income black communities, creating possible cultural biases (Brodie, 2000). As a result, a perceived race issue may also take on cultural implications as well. This crossover among group characteristics makes it difficult to define one particular, differentiating factor which pinpoints groups which are affected by the Divide.

We do know, however, that Americans with lower incomes (less than \$30,000 per year) are much less likely to use a computer or have Internet access than their higher-income counterparts (\$50,000 per year or more). In a recent study, Attewell (2001, p. 253) examined multiple demographic factors, specifically income, education, and race, which influence technology access, and concludes:

"At higher levels of income and education, there are minimal ethnic or racial differences in Internet access or computer ownership. If computer ownership continues its rapid spread among middle-income families, as seems likely, the Digital Divide will shift from

the bottom fifth of the income distribution, demarcating families with incomes below 15,000 per year from the rest of our society."

Further analysis of the Divide from a socioeconomic perspective identifies at least three issues which contribute to this separation, including: gaps in physical access to computers and the Internet, gaps in access to teaching and learning experiences that incorporate computers and the Internet in pedagogically sound ways, and gaps in access to relevant Internet content (Gorski, 2003).

Many of the proposed solutions to the Digital Divide reside with implementation of funding into public school systems which are located in low-income, urban areas, focusing on K-12 students who lack resources in the school and at home (Hess and Leal, 2001; Zardoya, 2001). Programs which address community need (Pinkett, 2003; Roach, 2002a; Roach, 2002b), and education of low-income individuals are also surfacing, warranting a closer look at what the effects the Divide has outside a traditional classroom environment.

This paper will further explore the research relevant to a socioeconomic perspective on the Digital Divide and its particular effects on adults using the gaps identified by Gorski (2003), as well as other significant areas identified in current research on which to further expand.

Guiding this analysis and discussion are the following questions:

- How does the Digital Divide affect low-income, student populations?
- What are some of the varying perspectives on the Divide, particularly from government, private donor, and educator standpoints?
- What initiatives are currently being taken to address the Digital Divide, and what specific gaps do these potential solutions address?

- What types of potential problems are caused by proposed solutions towards addressing the Divide?

Varying Perspectives on the Divide

It is important to acknowledge the varying perspectives towards the Divide, which provide insight into the actions being taken to further address the issue. This analysis will explore three main perspectives, including those of government (aka policy-makers), private donors (i.e. those who sponsor donations for computer labs, etc.), and educators (i.e. those responsible for implementing new technology into existing curriculum.)

Government Perspectives

A question asked by those questioning policy-makers regarding socioeconomic status and the Divide is whether or not providing access to computer technology is an effective policy instrument for reducing social inequality (Attewell, 2001). Government programming and policy often attempts to respond to the Divide by providing money and resources to educational institutions and communities, and this is supported by a study which suggests urban school districts appear to be addressing the Digital Divide although inequalities in computer access remain (Hess and Leal, 2001). Kvasny (2005), however, believes the Divide can not be overcome with a distributive solution that reallocates computing resources, primarily because it is ahistorical and technologically deterministic.

Providing access to computers in schools is not a sole solution to addressing the Divide. Research suggests that home, as a context, has more of an impact than school for technology exposure (Ching, Basham, and Jang, 2005), yet much of the available funding is for school or community-based programs, not for individual, home-based resources. Therefore, the question remains, does the allocation of funding through government resources address the issue of other

gaps in technology access linked to socioeconomic influences, or is providing computers in schools an adequate method to address the Divide?

The government perspective towards the Divide seems to address the gap in resource allocation, this but does little to recognize other issues discussed in the debate. While some view this as an ineffective bridge to close the Divide (Kvasny, 2005), it is important to note that many communities and institutions do benefit from resource allocation alone, and these efforts should not be dismissed. There are many, documented instances where government funded programs are shown to be successful in serving students and individuals in low-income populations (Bransford, 2001; Hess and Leal, 2002; Roach, 2002a; Roach, 2002b).

Private Donor Perspective

In a similar perspective to that of policy-makers and government, corporate donors often view resource allocation as a method to assist with elimination of the Divide. But what are the motivators behind these donations? From a workforce development standpoint, those without basic technological skills are already being left behind as future candidates for success in tomorrow's work environment and global economies (Zardoya, 2001). It is unclear if private donors consider these implications, or are providing donations for other reasons. However, Moss (2002, p. 164) provides further insight into this perspective, stating:

"Saying that everyone should be on-line will presumably generate more customers. In instances where computer companies say they wish to provide every high school student with a laptop so that they have access to a basic educational need, we should ask how much a need this actually is, relative to other needs, and why this particular need is loudly championed."

Committing resources to address the access Divide, whether from governmental or private sources, may lead to a speedier solution to the more visible Divide, the problem of disparities in access, at the cost of intensifying the less visible problem of disparities in use (Natriello, 2001).

Regardless of the motivation behind funding for resources, addressing the gap in technology access remains an important part of a larger solution to potentially closing the Divide. While resource allocation alone does not address content or curriculum issues, it does provide a means to supplying technology to those who do not have it.

Educator Perspective

While educators may see the value in providing access to technology, the concern for lack of human capital to implement resources may generate concerns for some. In addition, within a school setting, educators must also be concerned with parental support for implementation of programs. A truckload of computers delivered to a district without the resources to install, maintain, or prepare teachers to use them can weaken the overall school program by draining resources from other parts of the school program (Natriello, 2001).

Educators have the most opportunity to address issues surrounding the implementation of technology into curriculum in effective ways, and teachers must understand the need for incorporating technology into their daily experiences in meaningful ways. However, to do so, they must be prepared to face demands of the challenges of implementation of resources.

What Is - and Is Not - Being Done to Address the Divide

The majority of the initiatives being taken to address the Divide are resource allocation, which includes funding, donations, and implementation of technology into schools and communities. These initiatives, however, are only addressing the first gap of the Divide from a socioeconomic standpoint - lack of technology. There are, however, two other proposed gaps,

which are not as readily addressed (Gorski, 2003), including the means to incorporate technology into curriculum, and gaps in content relevant to marginalized groups.

As discussed earlier, technology programs are being implemented in schools, communities, and other institutions, particularly those which would not typically have access to these types of resources. Programs which reside within institutions which serve the public, in particular, such as public libraries, are implementing resources to allow citizens to gain access to technology resources. Milam (2001) states the role of the urban public library is to promote equitable access to information, linking citizens with local government and community services, and improving the competencies of all community residents in accessing, using, and creating virtual community resources.

One of the advantages of community technological resources (such as computer and internet workstations) is the elimination of the burden to purchase and maintain computer hardware (Moss, 2002) on the individual. A problem arises, however, on the sponsoring organization that is now required to maintain recently obtained technology, in light of a potential lack of additional funding. Based on available research, it appears that efforts are being made to address the lack of access to technology within low-income populations; but, to begin to close the Divide; the other, less visible gaps must also be addressed.

As mentioned earlier, educators are being faced with new technologies, yet, it is difficult to maintain, as well as incorporate these technologies into curriculum without additional staff development and human capital. Yet, some institutions remain concerned that, if they decide to forgo the implementation of new technology until more basic issues such as staff development and curricular reform are addressed may be impossible, since the lack of computers may expose

them to charges of inadequacy (Natriello, 2001). Therefore, what are educational institutions currently doing to keep up with the demands of new technologies?

First, it is important for educators to improve their own technology skills, and gain an ability to integrate technology into effective instruction and classroom management, and also develop a belief system which supports high expectations overall for students (Moore, Laffey, Espinosa, and Lodree, 2002). Institutions response to this issue is implementation of staff development programs which support integration of technology into curriculum. However, once these potential issues are overcome, it still remains difficult for educators to focus on one individual for a substantial period, particularly with many students within the classroom (Attewell, 2001).

One of the biggest challenges surrounding the Divide is the lack of relevant content on the Internet for individuals in marginalized groups. Yet, research shows one of the biggest barriers in student views of Internet usage surrounds culturally relevant content (Slate, Manuel and Brinson, 2002). This can become discouraging to those individuals seeking information which they can identify with, and prohibit those in marginalized groups from being motivated to use the computer and Internet.

Lack of relevant Internet content should not be viewed solely from a cultural perspective (such as primary languages spoken by the user). While accessibility of content relevant to individuals other than those who can speak English, other factors, such as educational level, and comfort with new technology also factor into the overall relevance of Internet content. Those with lower levels of education, for example, may have a difficult time finding materials which are appropriate for their particular reading level. Those wishing to advance their education may

find that enrollment procedures are housed solely on the Internet; for an individual new to Internet technology, this may become discouraging.

Also important is the amount of emphasis an organization places on new initiatives to integrate technology with their current offerings. For example, research shows that there is a great potential for using computers and the Internet to make health information available to a wide audience (Brodie, Flourney, Altman, and Blendon, 2000). As a result, many medical organizations (such as hospitals and insurance companies) place resources into developing websites to house useful information for customers. In the process, these organizations should not lose sight of the fact that not all customers have access to these resources, and will still require conventional customer service and information obtainment methods until the Divide is better addressed.

A Domino Effect of Issues

It appears that, those who are acknowledging the Divide, and taking steps to address it, are, overall, primarily concerned with lack of access to technology among underserved populations. While not every initiative currently being taken addresses each gap in the Divide, it appears that progress is being made with regards to supplying technology to individuals who might not otherwise have it. As potential steps towards closing the Divide are being taken, however, it seems as though new problems occur as a result. What does the parent, supporting a family on a fixed income, do when they are unable to maintain the equipment? Or, how does the teacher, with little access to professional development resources, successfully implement technology into curriculum when they, themselves, do not have the skills to do so? It seems as though, whenever new technology is implemented, there is a domino effect of additional

problems and concerns which need to be addressed which require new resources, training, skills, or human capital.

Another question arises as a result of this analysis surrounding the issues of successful implementation of technology into curriculum and culturally relevant content which is useful to low-income users of technology. Minimal steps are being made to address these problems, and not many individuals attempting to close the Divide appear to be taking interest in closing these particular gaps, let alone recognize they exist. Therefore, the question remains, is the Divide closing, or are we, as a society, merely providing more technology in areas which do not currently have it?

With regards to access to relevant Internet content, little is said in the research which addresses this particular issue, other than the statement that it is a problem. But, with the millions of individuals responsible for supplying content to the Internet, or creating software, we need to begin to look at who is taking responsibility for developing relevant Internet content. When a software development company decides to alter its product to engage a wider audience, there are positive and negative results. On the positive side, development of inclusive software will contribute to closing this particular gap in the Divide. However, these companies must incur additional costs to embark on these initiatives, which may result in loss of profit. Therefore, while an organization may believe development of relevant content to be important, it may not be a fiscally wise decision.

Again, while current initiatives may be supportive of closing the Divide, the "domino effect" which essentially results in additional problems, may be discouraging or, make it seem as though it is impossible to ever close the Divide.

Discussion

As U.S. Department of Commerce statistics show, recent evidence indicates that minorities and the poor are less likely to own computers and have Internet access at home than are white in less affluent households (Attewell, 2001), supporting the idea that, while there is no easy way to close the Divide, it appears that not enough is being done to address the issue. Therefore, more must be done to take a balanced approach towards addressing the Divide, rather than focusing specifically on technology access issues.

Gorski (2002) suggests a multicultural education approach towards understanding and eliminating the Divide. It is important this approach not be viewed as the sole responsibility of educators; each group showing interest in supporting the close of the Divide should be educated within the guidelines of these ideals. This approach includes (but is not limited to) the following techniques:

- Critiquing of technology-related inequalities,
- Broadening of the significance of access beyond that of physical access to computers,
- Broadening of the significance of access to be inclusive of software and content,
- Critically examining how technologies are being used by various people, and
- Considering the larger socio-political ramification of, and socio-economic motivations for, the significance of information technology.

While Gorski's (2002) suggestions for a multicultural education approach address the three gaps discussed throughout this paper, concerns still remain as to how this type of education is best implemented.

Unfortunately, government advocacy changes depending on the ideals of those in high level positions in office. During the Clinton administration, for example, the head of the Federal Communications Commission contended the Digital Divide constitutes the main civil rights challenge of this new millennium. However, this contention was derided by his successor in the Bush administration, who said he thought that the Divide is a dangerous term, and joked, "I think there is a Mercedes Divide. I'd like to have one; I can't afford one." (Labaton in Attewell, 2001, p. 252). Statements such as these show the extent of the oppositional viewpoints towards the Divide. Many do not believe it is an issue, and technology should be approached solely as a luxury. Others view the Divide as an issue related to rights of those of underprivileged populations.

While educators may take a vested interest in supporting the close of the Divide, many may not see the use of computers in the classroom. While low-income students experience the Internet during school, for example, they are much more likely to do so in a computer lab, where teaching and learning can often feel disconnected from the overall educational experience (Attewell, 2001). Research also shows that laptops have been found to be a distraction for some students (Zardoya, 2001) leaving educators uncertain if new technology is a resource or a detriment to traditional classroom instruction. Administrators of educational programs should find ways to educate teachers on the positive and negative effects of technology in the classroom, and encourage and support staff development in these areas. Questions still remain as to whose responsibility it is to address the Divide. While it is clear that multiple groups are showing interest, there is not one particular solution or initiative. Joint efforts must be made to better address the gaps which remain, and to further educate various groups about these issues.

Will the Divide ever be fully closed? Government officials, private donors, educators, and others supporting initiatives to address the issue must continue to understand and address the Divide from multiple viewpoints as opposed to addressing the issues from only one, narrow perspective. It is also important to address issues related to the various individuals affected by the socioeconomic Digital Divide, and acknowledge the effects the solutions to these particular issues have on creating other, potential gaps.

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