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# Implications of the Digital Divide for Technology Integration in Schools: A White Paper

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## Abstract

The implications of the Digital Divide in 2019 vary slightly from the onset of Internet use. Max Weber's (1922, 1978) theory of stratification provides a foundation for understanding why the growth is slow. Defining the Digital Divide is difficult. In reality, it has moved from a situation of access to acquiring sufficient skills to use it effectively. We examines the issue from the perspective of the need for technology literate leaders in schools. Technology literate leaders not only embrace technology: they model it. The leaders provide teachers with access and training to implement the best pedagogically sound teaching strategies so that students have optimum opportunities to learn with technology.

*Keywords:* Digital Divide, pedagogy, technology integration

Max Weber's (1922, 1978) theory of stratification provides a foundation for examination of the Digital Divide and how it appears in today's society. Weber believed the stratification of society included three types; class, status, and party. His theory drew attention to levels of socioeconomic culture. His belief was that humans living in community almost always reflected one of

these three types which he characterized as “manifestations of power.” He spoke of each as having its own level of power. Status held power through the social order. Class held power through the economic order. Party held power through the political order (Hurst, 2007).

Almost as soon as the Internet came into existence, it was widely known that it was unevenly developed globally (Guillen, M. F. & Suarez, S. L., 2005). In 1996, *The New York Times* reported, “only 9% of American classrooms have access to the internet” ([www.nytimes.com](http://www.nytimes.com)). Before 2001, the Digital Divide was defined as a divide of access. That definition was soon modified to include *use*; which is considered the second-level of divide (Van Deursen & van Dijk, 2015).

Access can be further broken based on reasons for use of the internet. According to Van Deursen and van Dijk (2015), four types of internet access exist: motivational, material, internet skills, and internet usage. Motivational access includes the reasons for internet use. Material access is viewed through the devices used to access the internet, implying that one must possess both the means and the opportunity to use the internet. Internet skills represent the second level of the Digital Divide. According to Hargittai (2002), “In recent years, the digital divide debate has centered on the acquisition of the necessary skills to use the Internet efficiently and effectively, also referred to as the second-level digital divide” (as cited in Van Deursen & van Dijk, 2015, p. 380). This explains why even those with material access still struggle with use--they have not developed the necessary skills to effectively meet their needs through use of the internet.

The fourth access, also related to second-level access, is internet usage and involves the frequency, type of activity, and length of time online (Van Deursen & van Dijk, 2005).

Toward the beginning of the debates about internet access and the possibility of a digital divide, Rogers (2003) observed the social problem with the use of the internet--that it is not accessible to everyone. Since his writing, many changes have taken place. However, even as late as 2012, the Pew Foundation reported “only 62% of people in households making less than \$30,000 a year used the internet, while in those making \$50,00-75,999 that percentage jumped to 90%.” Other findings involved vast differences between rural and urban and between low and high income areas. Anecdotal evidence also reveals, in comments by teachers, that low income students reported more obstacles to internet use than those in more affluent areas (Pew Report, 2012). A Pew Research Center Report found that “a person’s household income is an independent predictor of the likelihood that she or

he will be an internet and email user and be associated with the online activities we cite in this report” (Jansen, 2010, para 17).

In 2019, the divide is between classrooms and schools where technology is well integrated into the curriculum, and those classrooms where it is not well integrated into the curriculum. Although providing physical access to computers is the first step toward a solution, greater effort must be provided to resolve the disparity. Effective integration of technology into the classroom and adequate teacher training are two major issues that still need attention. In the 2019 classroom, students are often more technologically proficient than their teachers are. However, that technological proficiency is not necessarily synonymous with technological literacy. Proficiency with social networking tools or instant messaging does not imply critical technological literacy skills. This illustrates that the problem does not come down to an issue of access, but rather to the effective use of technology in school curriculums (Vie, 2008, as cited in McLean, 2014, para. 6)

### **How can Internet Access at School Make a Difference?**

In a recent meeting with U.S. Congressmen and members of the FCC, a colleague related that one member felt strongly that schools do not need more bandwidth for internet access; they need to be teaching students how to read. Others however, stepped in with explanations of why students need to use the internet and the benefits those skills will bring to our country's future workforce.

This encounter shows one side of the argument that plagues the education system. Powell (2000) stated,

We hear much today about the ‘digital divide’... When I address this issue, I use an even stronger term: digital apartheid ... This is true in America and in the rest of the world. If digital apartheid persists, we all lose. The digital have-nots will be poorer, more resentful of progress than ever, and will not be able to become the skilled workers or potential customers that are needed to sustain the growth of the Internet economy. So, the private sector is eager to tear down the wall between the digital haves and have-nots (as cited in Ragnedda, 2017, p. 13).

Based on studies conducted in Holland in 2007 and 2008, Van Deursen and van Dijk (2010) stated that the digital divide is much more complex than simply providing physical access. They reported that structural skills “strongly relate to education and intellectual capacities and should therefore gain a more central position in future research” (p. 909). Usage and content-related skills must be explored, therefore making education a key ingredient to overcoming barriers to access and skills related to internet use.

How will these skills be acquired? Van Deursen and van Dijk, (2015) stated, “Giving people high-skilled jobs and difficult school assignments might enrich their command of Internet skills and diversity of Internet applications more than leaving them to develop their own experience independently” (p. 388).

**How can we, as educational leadership programs,  
help our candidates think differently about their role  
as leaders in technology integration?**

The International Society for Technology in Education (ISTE.org) is leading the way in providing standards for administrators, teachers and students related to technology integration. In 2016 the student standards were reworked; and in June 2017, new teacher standards were unveiled. These standards were developed with the help of those in schools from all levels who have defined best practices for technology integration. The student standards (Fig. 1), were created to “empower student voice and ensure that learning is a student-driven process of exploration, creativity and discovery, no matter where they or their teachers are in the thoughtful integration of ed tech” (iste.org, nd). The teacher standards include empowerment—teach and learn in the digital age, equity--closing digital gaps, and empathy—challenging our biases. The focus is on the educator as learner, leader, citizen, collaborator, designer, facilitator, and analyst.

Teacher preparation programs are vital to the assurance that these skills are developed in students. One graduate student in an online course stated,

I think there needs to be a paradigm shift in the higher education field to move away from that passive learning style. Otherwise, there needs to be a frank conversation about what we, as educators, should do to prepare our students for college (Davis, 2017).

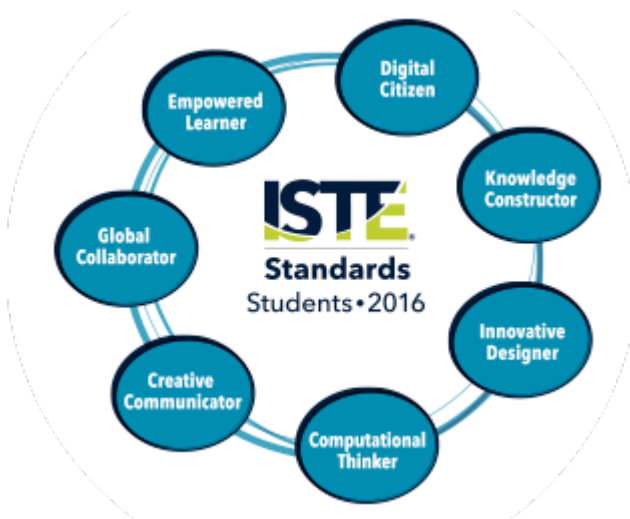


Figure 1

I (Becking) am a Google Certified Trainer. I have worked with Professional Development in a third of the K-12 school districts in our state. In discussions with teachers, and in classes I teach for K-12 teachers, I hear comments about administrators and the barriers teachers face to technology integration in their classrooms. because administrators/ principals, superintendents, and technology coordinators, make it hard for teachers to not just embrace engagement, collaboration, and creativity; but to give them permission to think, and therefore, teach differently.

In his online blog, *Dangerously Irrelevant*, McLeod (2016) stated,

I couldn't help but feel sad for this teacher. He took a small risk and it didn't go well so he retreated back to his age-old practices, frustrated and resentful of others who preached something different... As school leaders, we must provide much greater support to our teachers as we ask them to initiate new instructional practices and 'transform school.' I hear repeatedly from principals and superintendents that they supposedly have given their educators permission to be risk-takers. But ***it is not enough for school leaders to***

***just give encouragement or permission.*** Our teachers deserve specific, concrete instructional (re)design strategies and techniques; short-cycle feedback loops; ongoing conversation with teaching peers about successes and failures; and long-term, follow-up activities that ensure implementation success (para. 4).

Grady (2011) sought to help principals with a plan for effective technology leadership for their schools. She stated, “Don’t just ride the technology train, drive it” (cover). When that does not happen, it is a barrier for teachers. Administrators who do not understand the issues of technology, when money becomes available, purchase laptops, iPads, or Smart Boards that just sit in classrooms. Or, they may become another way to do what has always been done. This occurs when time is not provided for the teachers to think through how they can integrate these technology tools into their pedagogy.

### **Which Came First: Pedagogy or Technology?**

An online student, a teacher in a K-12 classroom, stated,

Integrating technology into my teaching has provided more of a well-balanced pedagogical approach. I feel I am able to better meet the needs of all my students by providing multiple learning opportunities through different formats. Technological tools give me options to reach the different types of students...I see more “ah-ha” moments from students when I teach the same concept through different media (Palm, 2016).

In his work on School Change, Fullan (2013) stated, “Pedagogy is the driver, technology is the accelerator” (as cited in *The ICT Evangelist* blog, 2016, para. 1). Fullan (2013) contended that the right driver for change in the public school, is not what we usually focus on, technology, but rather on the pedagogy behind it. Fullan (2013) advocates for maximizing pedagogy and allowing technology to support it. When asked, “How does shifting to digital resources change teaching and learning” (Ascione, 2017), Marcenik, CIO at Worcester Academy in Massachusetts, replied,

It changes it dramatically... I think the entire shift in pedagogy is something we're looking at here, in ways in which we incorporate project-based learning, competency-based models and blended models. Once these models and philosophies are established, the next step is to shift to the digital resources that support those models (as cited in Ascione, 2017 para. 3).

His statements are another indication of what should really drive technology integration—not the technology itself, but the pedagogy behind it.

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