Improving Strategies for Low- income Family Children's Information Literacy

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Abstract   This article discussed the significance of improving low-income family children's information literacy, which could improve educational quality, enhance children's self-esteem, adapt children to the future competitive world market, as well as the problems in improving low- income family children's information literacy, such as no home computer and internet connectivity, high expenses in computer maintenance, and barrier of information literacy. Finally, four suggestions were given on how to improve low-income family children's information literacy, namely, government' facilitate the prevailing of computer application, state's establishing community information centers, parents' participating in computer learning and teachers' devoting to professional development. Technology couldn't replace all the teachers' functions, especially the teachers' expectation and encouragement for those low-income family children, which played important role in preparing low- income family children for the future competitive job market.

Keywords   Information Literacy, Internet-based Technology, Low-income Family Children, Digital Divide

1. Introduction

Information literacy referred to a student's ability to collect, analyze and utilize information gathered via the use of information technology [1], which now were mainly through computers, mobile phones, ipad, etc., and the ability to use that information to make effective decisions. If computer literacy dealt with an understanding of how to use a computer and accomplish something useful with it [2], information literacy surpassed it and concerned with the real operation with all kinds of information technology. Ten years ago, computer skills were a luxury and desired by those who hadn't these skills; but now, they were a necessity for everyone. If you didn't know how to control a computer, you might not find a suitable job in society, or even couldn't live a comfortable life.

Some people called the children born in America after 1984 as "Net Generation" or the "millennials", to indicate that today's young people had matured in a world that contained the Internet and varieties of digital technology [3], or meant that Net had become an inseparable part of their life. Was it real in the whole America that every post- 1984 child had access to internet? The answer was definitely no. According to the 2008 research, only two thirds of people in the United States had Internet access at home [4], which meant, one third of children had no chance to surf the internet at home for economic reasons.

In modern world, the ability to master technology was now a basic skill and one that was critical for all students. According to the survey, Ono and Zavodny [5] found out that income was the main factor that drove computer ownership in the United States, Sweden, Japan, South Korea, and Singapore. Why was information literacy important for those low-income family children? What problems did internet-based technology bring to low-income families? How to solve the problem of digital divide? How to provide the children in low-income family equal chance to improve their children's information literacy? All these need to be seriously considered by our government, community, school, even family itself.

2. Significance of Improving Low-income Family Children's Information Literacy

2.1. Improving Educational Quality

2001education statistics had shown that students from low-income background did not currently graduate from high school or earn admission to college as often as middle-and upper-income students [6]. In order to improve educational quality for all students, Bush government implemented No Child Left Behind (NCLB) Act, intended to close the achievement gap between high and low achieving students and especially the achievement gaps between

minority and non-minority students along with the advantaged and disadvantaged students [7], which marked the educational focus shift to those underserved students, and it was in the same year that the US government mandated that all students in the eighth grade must be technological literate irrespective of race or socioeconomic class [8]. But the result was that after 10 years' implementation, some schools lowered their standards or exclusive the scores of the minority and disadvantaged students to avoid punishment, which made the Obama Government proposed Common Core State Standards (CCSS) for K-12 education. In CCSS, there was a standard for technology use, "Just as media and technology are integrated in school and life in the twenty-first century, skills related to media use (both critical analysis and production of media) are integrated throughout the standards" [9]. This emphasized again the importance of American students' information literacy; no matter they were from high income or low income families.

2.2. Enhancing Children's Self-esteem

The researchers reported that the benefits of home computer in the area of cognitive skills and self-esteem were modest [10]. Information literacy could help children develop a self-learning attitude because if the children had high information literacy, the members of their families and communities would look to them for help in navigating an increasingly digital world, which would without doubt enhancing their self-esteem; and this character was the prerequisite for their upgrading independent learning. Children in low-income family had low self-esteem for their economic conditions; therefore, the grasp of information literacy could make them find more self-confidence, self-esteem than those who didn't, which could become the first step for their success.

2.3. Adapting Children to the Future Competitive World Market

The importance of the computer among children from low-income families was to complete and enhance their school work, develop digital literacy [11], as well as building "social capital" that could "foster economic development" [12]. 21st century was an era of digital information, which made it necessary for all children to grasp the skills of internet-based technology to become highly proficient in the use of computers to meet the need of future competitive job market. Information literacy equipped those low-income family children more power to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals, which was not only a process of social promotion, but also a process of self- realization.

3. Problems in Improving Low Income Family Children's Information Literacy

3.1. No Home Computer and Internet Connectivity

Digital divide made privileged and underprivileged groups the inequitable access to information and communication technologies (ICT). Statistics showed that rural, young, minority and single-parent households lagged behind the national average in both computer ownership and Internet access [13]. 2000 U.S. Census revealed that just 15 percent of homes with annual family income between $20,000 and $25,000 had home computer [14] and among those Americans who made less than $25,000, 65 percent lacked internet access [15]. As a result, no home computer and internet connectivity became the biggest problem for those low-income families.

3.2. High Expenses in Computer Maintenance

Low-income students often found themselves in charge of the maintenance and upkeep of the household computer when they left school [16]. Symantec Corporation reported that computer viruses and worms had increased 64% over the first half of 2005 [17]. Fighting these sorts of problems could be financially expensive. A clearer understanding of the problems and potential barriers that low-income high school students might encounter families in computer maintenance and internet connectivity was therefore currently needed, in order to ascertain whether these students could even regularly use their home computers for educational purposes.

3.3 Obstacle to Information Literacy

Even if schools and households had computers, information literacy continued to be a barrier [18]. Research indicated that low-income students were less likely than affluent students to use their home computers for word processing, school assignments, and other standard software applications and more likely to use them for games [13]. Students from low-income or disadvantaged backgrounds may encounter different challenges in using the internet within their households than students from higher socio-economic classes, as the latter generally had access to a greater amount of financial resources and larger support networks [16].

4. Recommendations on Improving Low Income Family Children's Information Literacy

Ba, et al. [11] identified children's low computer literacy from three aspects: computer availability (the technological environment, or the length of availability of home computers and the presence of money for stable Internet connectivity), parental involvement (the social environment and this included parental and peer attitudes as well as computer expertise) and school instruction (the school and

especially, homework assignments, the amount of computer instruction and school hours). Therefore, in order to improve the children's low computer literacy, three prerequisites need to be met. As for children came from low income family, more facilitation and help need to be provided by the whole society. The following suggestions were proposed from these three aspects.

4.1. Both the Local and Federal Government Should Lead the Effort to the Prevailing of Computer Application

Government had responsibility to promote the development of non-profit information technology in low-income families, which including obtain and refurbish good retired computers, obtain software from donor programs, recruit volunteers to help children with their schoolwork and information literacy, and provided free technical support and high-speed Internet with the necessary safeguards to protect children from pornography, viruses, etc. British government had implemented a Home Access Program by providing computer and Internet connectivity to children belonging to low-income household, and the result of the program was an increase in student time engagement in homework and independent learning activities on computer at home, as well as improved the level of parents' engagement in their child's learning [19]; therefore, the government must do something in improving low-income family children's information literacy.

4.2. State's Establishing Community Information Centers

State should provide adequate funds to establish Community technology centers (CTCs) in those low-income neighborhood, which, however, do much more, providing not just access, but general youth development, including the opportunity for youth to voice their stories, contribute to community-building, and expand networks [20]. In community technology centers, children from low income families could have access to "green net", which would discard adults' consideration of the influence of sex, violence and indulgence of computer games. In community technology centers, staff could help those children who need technological facilitations and improve the children's information literacy by providing some internet-based technology class.

4.3. Parents' Participating in Computer Learning

Involving parents in their children's education had long been recognized as a significant factor in students' success. [11] Identified parental attitude was one of the three factors affecting children's digital literacy. They also noted the importance of instructing parents as well as children in computer literacy and offering troubleshooting strategies.

Qualitative research with low-income Latino families indicated that children learn well when their parents were actively involved in their learning [21]. As for young children, parental monitoring was needed which described the active observation and supervision by parents during the period designated for children's computer use, which could reduce the challenge of computer indulgence. It was useful if a venue was available where many computers and associated technology were located, and if it could be coupled with availability of persons to help familiarize parents with the use of computers as well as for guiding their use for learning [22].

4.4. Teachers' Devoting to Professional Development

Internet-based technology wasn't difficult for young teachers; however, it might be a big problem for those who had been teachers for over twenty years, or who worked in low-income neighborhood, where there was seldom opportunity to access internet. Students' information literacy couldn't be improved without teachers' appropriate instruction. Therefore, teachers should try their best to familiarize with the usage of internet, by way of independent learning, or attend the computer class during their spare time, which could make them confident in answering students' questions or solving their problems in using computers. Educators who were proficient in the use of the computer could solve problems efficiently and effectively and also arouse children's interest in information literacy.

5. Conclusions

Information literacy was an important and necessary component in today's children's literacy and needed to be emphasized wherever they were or whatever families they came from. At the same time, teacher functions in class couldn't be neglected or totally replaced by computers. Poor and disadvantaged children needed as much help as possible in their emotional and social development during the course of their formal education, which was not going to realize online [23]. Appropriate usage of information in class and at home was an improvement for low-income family children's whole development and need the focus of whole society.

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