Comparing Peer-to-Peer and Individual Learning: Teaching Basic Computer Skills to Disadvantaged Adults

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ABSTRACT
Peer-to-peer (P2P) learning within two distinct groups of disadvantaged adults was studied during a two-hour computer skills workshop. Of interest was whether or not P2P learning with this population was a viable method for increasing performance and confidence. Two qualified instructors at two locations taught the same introductory word-processing workshop to students enrolled in one of three learning intervention groups: P2P, Individual (IND), and No Intervention (NINT). Data was collected through pre- and posttests (all groups), quizzes (P2P and IND groups) and qualitative analysis of P2P group discussions. Quiz results indicated that those in the P2P group gained a better understanding of concepts than participants in the IND group; however, posttest results showed that the understanding was not maintained over time. Confidence in computer skills knowledge increased between the pre and posttest in all treatment groups, regardless of correct or incorrect answers. Analysis of P2P discussions found a significant relationship between the quality of peer discussions and the posttest scores. This study concluded there is a potential benefit of using P2P strategies with disadvantaged adults in the classroom, as confidence is developed and maintained, even as knowledge was not.

KEYWORDS
Achievement, Adult Learning, Computer Skills, Confidence, Disadvantaged Adults, Peer-to-Peer

INTRODUCTION
The creation and widening of the so-called “digital divide” - the societal difference between those who have access to technology and those who do not – has highlighted the importance of technology skills in the current workplace. Although initial research in this area focused mainly on access to technology, recently the focus has shifted to education. However, it is not enough to simply have the technology within reach; the knowledge to use the technology is necessary to eliminate the digital divide (van Dijk, 2006).

Computer use is increasing at work, home and for services (Morris, 2009). Even though the number of people with basic computer skills is on the rise, a large percentage of the population is still considered computer illiterate as they “lack the basic skills to access ICT [Information and Communication Technologies] and are at risk of being left further behind in a world that becomes ever more digital” (Morris, 2009, p. 8). This lack of skills is related to insufficient computer education and hands-on experience, specifically in disadvantaged populations who are less likely to have access to digital resources (Helsper, 2008). As a result of this skill set deficiency, these groups are becoming even more socially, economically, and educationally disadvantaged, leading to a lower quality of life.
(Hayes, 2007). To improve chances of succeeding, disadvantaged adults must acquire the necessary education and skills to gain meaningful employment (Alssid, Gruber, Jenkins, Mazzeo, Roberts and Stanback-Stroud, 2005). Therefore, this study chose to focus on addressing essential computer skills necessary to procure employment in today’s workplace, specifically basic knowledge of word processing.

There are a wide variety of ways to teach computer skills to disadvantaged adult populations. Collaborative learning strategies, such as peer-to-peer (P2P) learning, have been shown to have a better impact on adult learning than traditional classroom methods (Newman, 2014; Mazur, 1997). However, P2P learning techniques have not been widely explored as a strategy to teach disadvantaged adult learners in the area of basic computer skills. Working from a theoretical foundation rooted in Eric Mazur’s peer education model, which engages meaningfully in a Vygotskian approach to employ intermediary novices (for this study, fellow classmates), this project was guided by social support theory, where goals are achieved through the use of social support networks. The development of computer skills in disadvantaged adult populations has the potential to be considered a form of transformational learning, capable of fostering increased well-being, deeper relationships, and hope for the future (Hyland-Russell, 2015). Therefore, this study aims to determine whether P2P learning can help to increase performance and confidence in basic computer skills and prove to be a method for improving overall success for disadvantaged adults.

**Disadvantaged Adult**

Lyndon (2002) defined the disadvantaged adult population as having experiences with any or all of the following circumstances: substance abuse, transient living, mental health issues, low or no income, negative experiences with education and a limited education. As a result of having less stability and education, many disadvantaged adults find themselves unemployed or in lower-paying occupations than higher educated adults and are often have precarious economic status during challenging economic times (White, 2013). Education has been identified as critical for disadvantaged adults to improve their social and economic status (Mendelson, 2008). A sentiment conveyed by many undereducated adults was that computers and technology were important for success (Jensen, Haleman, Goldstein and Anderman, 2000). The desire to become computer literate is justifiable, as numerous jobs require at least a minimal understanding and use of computers. As such, computer skills classes are one of the most popular subjects sought out by adult learners (Dinsdale, 2002).

Often, low-income, older, and illiterate adults do not have access to computers and technology and feel that computers do not have a place in their lives (Osei, 2001). However, within these populations, working with computers helps to make them feel they are part of the technological world, and therefore included in modern times.

**Adult Learners**

Apps (1991) described six important characteristics of adult learners:

1. Adults’ personal history influences their perception and integration of new information; including how they organize, accept or discard, and how they relate new information to previous information.
2. Adults have preferred learning styles because they have experienced particular learning styles in the past. Learning styles include listening, visual materials, learning alone, and learning with others.
3. Social setting is important for adult learners because they have such responsibilities as family and work. Therefore, adult learners prefer to have some control over the learning place, pace and time.
4. Adult learners are motivated for various reasons, and in general decide to participate in learning due to a significant event in their lives such as improving workplace knowledge or entering/returning to the workforce after a long absence.
Historical Evolution of Adult Education in America: The Impact of Institutions, Change, and Acculturation
www.igi-global.com/chapter/historical-evolution-of-adult-education-in-america/105233?camid=4v1a

The Perceived Work Ethic of K-12 Teachers by Generational Status: Generation X vs. Baby Boom Generation
www.igi-global.com/article/perceived-work-ethic-teachers-generational/78272?camid=4v1a