Perception of African Youth on Personal Computer Utilization: The Case of Ethiopia and Rwanda

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ABSTRACT

The tendency to pursue innovativeness and adopt new technologies has been found more likely with younger individuals and a strong relationship between attitude and personal computer (PC) utilization has been found. However, research in these areas is mainly focused on high-income countries. Do these findings hold for low-income countries? What are the perceptions of African youth on the factors that impact PC use? There is a dearth of micro-level studies that promote understanding about the behavior of individuals in low-income countries. This study looked at demographic data including age, gender, grade level, region, and prior experience among 228 youth from Ethiopia and Rwanda. PC utilization constructs including complexity, long-term consequences, and facilitating conditions were studied. The author found access to PCs at least three times a week and providing structured computer training programs as major factor for increased PC utilization. Computer centers with more female instructors were found to have larger female enrollment. The author also found younger groups (15 year olds and younger) disagreed about PC utilization factors. Implications and directions for future research are also included.

Keywords: Africa, Computer Use, Ethiopia, Information Technology Utilization, Personal Computer, Rwanda, Youth

INTRODUCTION

In high-income countries the tendency to pursue innovativeness and hence adopt new technologies has been found to be more likely with younger individuals (Rogers, 1995). Do African youth follow the same patterns? What are the perceptions of African youth on the factors that impact Personal Computer (PC) use? Youth (student) participation in studies may provide innovative methods about their learning process (Spires et al., 2008). This study assesses factors that impact PC utilization among five youth groups from Ethiopia and Rwanda.

Predicting Information Technology (IT) usage has been an important area of Information Systems (IS) research (Paul & Mendel, 2006). A link has been found between beliefs about computers and computer experience (Potosky & Bobko, 2001). Pavlou and Fygenson (2006) found attitude and access as critical components for success in low-income countries. Many researchers have demonstrated a relationship between attitude and PC utilization. However, research conducted in this area mainly focused on high-income countries. Do these findings...
hold for low-income countries? To address this question micro-level studies are needed in low-income countries. There is a dearth of micro-level studies that promote understanding about the behavior of individuals in low-income countries. This study bridges this gap by focusing on two low-income countries: Ethiopia and Rwanda.

Individual PC utilization is a well studied topic (Thompson et al., 1991; Compeau & Higgins, 1995). However, the main focus of these studies was the organizational setting. For example, Thomson et al. (1991) used measures that reflect (i) the knowledge workers’ feelings toward PC usage (affect), (ii) the presence of social norms about PC usage in the work place, (iii) the individual habits associated with PC usage, (iv) the individualistic expectation of future outcomes of PC usage, and importantly, (v) the conditions in the work environment that facilitate conditions conducive to PC usage. Compeau and Higgins (1995) used the work setting to add factors including encouragement and support, self efficacy beliefs, and anxiety. The main focus in the current study, youth PC utilization in Ethiopia and Rwanda, does not have a work setting. Therefore we used the school setting and modified the questionnaire to read “school related work” instead of “job related work.”

Synergies resulting from technical and human IT resources are likely to result in improved organizational performance (Melville, Kraemer, & Gurbaxani, 2004). The introduction of PCs has been argued to have increased productivity (Saunders et al., 2007; Mukhopadhyay et al., 1995; Triplett, 1999; Bharadwaj, 2000; Brynjolfsson, 2003). This success, however, is regional; many demographic and regional data affect computer access (Dewan & Riggins, 2005; Idowu et al., 2005; Hoffman & Novak, 1998). Therefore, the current study looks at three different regions in two countries: Kigali, Rwanda—population = 850,000 (Wikipedia, 2005); Bahir Dar, Ethiopia—population = 170,000 (Wikipedia, 2005); and Addis Ababa, Ethiopia—population = 4.8 million (http://www.norway.org.et/).

In the 1980s and 1990s factors including income, employment, education, age, and ethnicity were shown to exasperate the digital-divide; these access and usage differentials are likely to increase (Kijk & Hacker, 2003). A cross-country study has shown that computer use is affected by many factors including economic variables (income per capita, years of schooling, illiteracy, trade openness), demographic variables (youth and aged dependency ratios, urbanization rate), infrastructure indicators (telephone density, electricity consumption), telecommunications pricing measures, and regulatory quality (Chinn & Fairlie, 2006; Dewan, Ganley, & Kraemer, 2005). Underrepresentation of women in ICT and sciences is also exasperate the digital-divide (Sanders, 2006). Individual factors including anxiety, innovativeness, and experience were also found to affect adoption (Beaudry & Pinsonneault, 2005) and ICT integration (Tibebu, Bandyopadhyay, & Negash, 2009). Wealth has been identified as an important factor in causing the digital divide (Kevin & Kenneth, 2005). Many of these factors are prevalent in low-income countries. Hence, we conduct an analysis of variance using similar background factors including age, gender, grade level, region, prior software knowledge, frequency of prior computer use, internet access at home, and home computer ownership.

**THEORETICAL BACKGROUND**

This study adopted the PC utilization model by Thompson et al. (1991). We made minor modifications in stating the survey questionnaire to fit our audience; youth groups in a non-work environment. The Thompson et al. (1991) model looked at six independent constructs that impact utilization of PC including complexity of PC use, job fit with PC use, long-term consequences of PC use, affect toward PC use, facilitating conditions (support) for PC use, and social factors influencing PC use. The constructs are defined as follows:

- **Complexity of PC use**: complexity is defined as “the degree to which an innovation is...”
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