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## Need Analysis – Information Technology Literacy Skills for Non-Majority College Students

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There is little doubt that modern computer technology is an integral part of the university experience, with a profound impact on information literacy. Since the late 1990's - after the internet became publicly available and PC use widespread - academic institutions increasingly offered courses as distance learning experiences rather than in the traditional physical setting. Classwork in both formats entailed accessing library databases, communicating in online discussion forums and making use of various software programs (Goode, 2010; O'Hanlon, 2002, Chisholm et al, 1999). In truth, one could argue that information technology had become a "distinguishing attribute" of institutions with high academic standards (Chisholm et al., 1999).

Nevertheless, studies have long shown that while professors assume students possess basic technological proficiency, including computer literacy, incoming freshman do not actually demonstrate these skills. Assessment tests and grades indicate that students fall short in this area (Head and Eisenberg, 2010; Tien and Fu, 2006). When queried, many students over-report their own technology literacy abilities (Wilkinson, 2006; O'Hanlon, 2002), while others openly admit that they feel under-prepared (Chisholm, 1999). This persistent state of affairs has far-reaching consequences because knowledge of computers has been shown to at least moderately affect student-learning outcomes (Tien and Fu, 2006) and even to impact the courses students choose to take (Goode, 2010). This, in turn, has career and even social implications (Goode, 2010).

Within this overall trend, a persistent pattern arises. Students from non-majority ethnicities and those with lower socio-economic histories evidence disparate computer access and literacy skills when compared to their majority peers (Goode, 2010; Cummins et al., 2007; Tien and Fu, 2006; Wilkinson, 2006; Kuhlemeier and Hemker, 2005; O'Hanlon, 2002; Pearson, 2001; Chisholm et al., 1999). Theories to explain this state of affairs range from socioeconomic and cultural barriers to modern classroom pedagogy. However, most faculty possess neither the skills necessary for assisting students to progress in these areas nor do they have the substantial amounts of time required to ameliorate students' literacy needs outside of class (Head & Eisenberg, 2010). And, despite ever-increasing access to technology by teachers and students, no large-scale improvement in computer literacy has been demonstrated (Cummins et. al, 2007).

Considering the above factors, the objective of this research is twofold: first, to determine whether an information technology literacy gap persists between majority and non-majority students today and, second, to identify the nature of any gap in an effort to provide insight regarding how best to support the information technology literacy of non-majority college students. The hypothesis for this study posits that non-majority college students lack information technology literacy, specifically associated with operating systems (OS) related functions, Microsoft Office related products and other technology such as Internet use (communication, shopping, research, social media, library data base searches and instructional technologies).

A two-step methodology process was carried out. First data was collected using focus group interviews of non-majority college students. Next, based on the learning from focus groups, an online survey instrument was developed and data subsequently collected from both majority and non-majority college students from one university. Coding of minority students was based on the disclosed ethnicity, place of birth, and parents' places of birth. Technology literacy skill levels were designed based on task usage for college students with the help of subject experts. The data was analyzed both qualitatively and quantitatively to develop generalized conclusions.

Based on the focus group results, 60% of the non-majority college students complained that they did not obtain sufficient computer literacy from high school and asserted that they gained computer literacy via a number of paths including "self-learning", "asking friends for help", "attending extracurricular classes" or through "completing assignments once in junior college". The survey results agreed with these findings. This compares to 25% of majority students noting that their skills in this area were insufficient for college needs.

Based on survey results 38% of non-majority students have beginner to intermediate level MS Word skills while 62% have expert skills. However, *all* majority students possess intermediate/expert level skills. For MS Excel, 75% of non-majority students have beginner/intermediate level skills while 25% possess expert skills. However, 75% of majority students possess intermediate/expert level skills. With regard to MS Power Point, 88% of non-majority students have beginner/intermediate level skills while 12% have expert skills. Yet *all* majority students possess intermediate/expert level skills. These results clearly show a technology literacy gap between non-majority college students and their majority peers. In addition, non-majority students display a slightly lower skill levels in computer operating system (OS) related functions such as managing files and folders, installing devices, etc. compared to their colleagues. All college students show a lack of skills in managing general software programs such as virus scan programs and tasks such as sending faxes, etc.

Data also indicates that 100% of majority and non-majority college students shop online. All students are involved in online social networks and spend time daily. However, only about 30% of students are involved in writing online blogs. Neither majority nor non-majority students are significantly involved in online gaming. Results also revealed that every college student has either a mobile or local Internet connection and all most all college students use at least a smart phone if not other devices such as tablets, notebooks, etc. with an Internet connection.

In conclusion, results show a clear difference in technology literacy levels between majority and non-majority individuals accepting the hypothesis. Qualitative data reveals this lack of literacy rates has a relationship to "living conditions" and "parental income" even though all students had access to a computer by the time they entered college. Many respondents asserted a need for computer literacy help to complete college assignments and felt that high school did not adequately prepare them with essential computer skills beyond "keyboarding". The findings from this research are a call to action regarding providing college curricula to assist non-majority students in the information technology skills that will support their success in college. These results also bring attention to the need for further research in several areas, including the information technology skills provided in high schools.

*Full references will be provided upon request.*