

# ASSESSING THE TECHNOLOGY SKILLS AND EXPERIENCE OF ENTERING FRESHMEN FOR THE DESIGN OF THE SOPHOMORE TECHNOLOGY COURSE

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## INTRODUCTION

The rapid advancement of technology results in a rapidly changing student audience. As quickly as teacher educators design curriculum to match technology standards with pre-service student instructional needs, a new freshmen class enters with a different set of skills and experience. Taking a baseline measure of the technology skills and attitudes of entering students helps faculty provide developmentally appropriate technology education. This article shares and discusses a survey method for assessing the technology skills, experience, and predisposition of 65 entering freshmen so that the sophomore media and technology course could be meaningfully designed. The skills portion of the survey is adapted from the Professional Competency Continuum (Milken Family Foundation, 2000). Results show that the entering freshmen are in the ENTRY stage of technology competency. Because we also wanted to address how our students are thinking about shaping or being shaped by educational technology, the survey additionally assessed high school experience, attitudes towards technology in the classroom, and self-perceptions of greatest technological skill. The data from Fall 2000 will be used to modify topic depth and starting points for instruction on email, visual design, role of technology, web page development, and desktop publishing.

## DATA GATHERING AND ANALYSIS

Each education freshman (n=59) took the technology skills and application survey in the fall of 2000. The subjects took a shortened version of the Professional Competency Continuum Assessment Tool (Milken Family Foundation, 2000). The assessment included only those items that would pertain to a freshman pre-service teacher. Of 9 possible points on a continuum of competency, 0-3 is considered ENTERING, 4-6 is considered ADAPTATION, and 7-9 represents TRANSFORMATION.

In addition to the Milken items, the students also responded to queries about high school computer facilities and courses and to open-ended questions about their experiences with and attitudes towards technology in the classroom. The open-ended question "What is the most challenging technology-related task you have accomplished?" yielded 13 different tasks, dominated by presentation, desktop publishing and Internet software. The second open-ended question was "How should technology be used in the classroom?" The data from that question were coded into five categories: enthusiastic about use, cautious about use, uses as

teaching supports, prevalent uses in today's and future society, and uses for new teaching methods.

## RESULTS

What high school computer facilities did the Class of 2004 encounter? Over half of the respondents had some sort of high school technology courses (n=37), but the majority of those courses were keyboarding or computer literacy courses. Forty-nine students reported having computer labs in their schools; twenty-three students reported computers in all classrooms, and twenty-one reported computers in some classrooms. PC's (n=27) were reported more often than Macintoshes (n=24), and Apples still were in the schools as reported by 14 students. These numbers, however, represent the presence of these platforms, not a number of machines by platform in each respondent's high school. Only 12 students reported the presence of Macintosh computers without accompanying PC's.

Students' experiences varied widely. Students reported most experience in use of the Internet (n= 45), email (n=42), and word processing (n=42). Moderate levels of experience were reported in PowerPoint (n=29), spreadsheets (n=20) and desktop publishing (n=16). Lowest levels were reported for databases (n=9), web pages (n=8), and HyperStudio (n=5).

The students of the Class of 2004 generally scored in the ENTERING stage of the Professional Competency Continuum. Range was from .88 to 4.88. The average score was 2.63; the mode was 2, and the standard deviation was 1.56.

Analyses of the responses to the two open-ended questions yielded data in the students' own words, coded into 13 categories. PowerPoint was the dominant challenging experience for thirteen respondents, followed by seven cases of desktop publishing, six cases citing use of the Internet and four references to using the Internet as the most challenging experience. Ten other categories had 1-3 citations. The question regarding how technology should be used in the classroom yielded 5 categories. The two top categories were statements of technology's support of current teaching (n=17) and technology's dominance in today and tomorrow's society (n=17). Close behind was enthusiasm for technology (n=14) and caution about technology (n=12). Two statements were coded as new teaching methods made possible because of technology.

## PROFILE OF STUDENTS IN EDUC 210 DURING 2001-2002

Always mindful of the range of abilities and experiences in any classroom, the instructor can use a profile to plan for the attributes students bring to the classroom. The table below illustrates this profile.

Table 1. Technology Profile of the 2001-2002 Sophomore in Education

High School Experience	Technology Competence	Attitude Toward Technology in Education
Most likely used PC's in a lab setting. Uses word processing, the Internet for information searching and email for communication.	Has beginner's competence in most areas of computer use, especially basic operations. Is not aware of broad range of software for either professional or personal use.	Understands that technology is pervasive and is not to be ignored. Is aware that technology can support a teacher in the classroom but is cautious about technology encroaching upon the teacher's role.

### CONCLUSIONS

The International Society for Technology in Education (ISTE) has published National Education Technology Standards for Teachers (2000). The standards address six areas: technology operations and concepts; planning and designing learning environments and experiences; teaching, learning, and the curriculum; assessment and evaluation; productivity and professional practice; and social, ethical, legal, and human issues. It cannot be assumed that the ubiquitous nature of computers translates into skillful users of technology. Computer operations is still a needed topic but should have more emphasis on the attributes of technology that can be used to extend teaching possibilities. It appears that this incoming class of students is aware of technology as a tool, but they don't grasp the depth and impact that technology can have on the manner and dimensions of the learning process. At the same time, students seem invested in maintaining the status quo. The students' caution is illustrated by statements about technology assisting in the classroom but not to the point where it would not "dominate or actually teach." As technology advances, students are facing a profession that will look and act differently than the one they were taught by. Students need to examine whether their skepticism stems from fear of change or from grounded information (Albaugh, 1997). Each computer application and each demonstration of technology integration ought to coincide with an examination of the purpose of tools and the outcomes of learning.

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