vent public display of still images. Putting a graphic or photograph online would be considered a violation.

The extensive, dynamic, and accessible nature of information on the Internet presents new challenges to teachers and learners. Without adequate tools and strategies, students may become overloaded with information or disoriented in countless links. They may be unable to differentiate materials written at different levels of complexity. Assistance from faculty in dealing with online information can help students. Cyberpolice are not restricting unreliable sites nor regulating illegal practices, YET! *

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STUDENT VIEWS OF AN ELECTRONIC CLASSROOM

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Encouraged by various faculty development initiatives, many professors have adopted instructional technologies to enhance learning and meet instructional goals. In a previous paper (Davis 1997), I discussed the transformation of an introductory biology course (Biol. 112) from a traditional setting to a "new chalk" environment. Since then, I have also placed course materials for this class on the World Wide Web.

I became interested in student attitudes towards multimedia after a colleague informed me that few studies have addressed the impact of instructional technology from a student's perspective. Because written comments included in standard course evaluations are often anecdotal and difficult to assess, I developed a survey instrument that permitted me to quantify student attitudes about instructional technology (IT). Gathering ideas from previous studies (Avila et al. 1995, Flora and Logan 1996, Fox 1996, Pridemore and Klein 1995), I created a Likert-type survey which queried students about: the multimedia approach to teaching; the impact of IT on learning; their preference for IT-enhanced classes; their present computer skills; the importance of computer skills in future classes and in the work force, as well as their perception of the opportunity to develop computer skills as an undergraduate.

Students completed the survey anonymously during the last week of class and received two bonus points on the final exam as an incentive for returning the completed form. Seventy-seven of the eighty-one students (95%) surveyed returned completed forms. Here I present an overview of survey results from three academic quarters (Winter 97, Summer 97 and Winter 98). The complete survey and student responses to each survey item can be accessed via the electronic journal *Online In-*

struction: Trends and Issues at the following URL: http://leahi.kcc.hawaii.edu/org/tcon98/paper/davis.html.

Survey Results

Students' response towards multimedia in the classroom was overwhelmingly positive. Ninety-three percent of the students reported that they enjoyed the multimedia classroom and 94% recommended using multimedia in future Biol. 112 classes. Seventy-nine percent of the students indicated their preference for a multimedia class compared to a traditional "chalk and blackboard" class. Ninety-three percent of the students noted that the visually-enriched classroom helped them gain a better understanding of the course material. Seventy-two percent of students enjoyed using the computer-based tutorials (including those on the Web). Eighty-four percent reported that these tutorials helped their learning and 82% indicated that the tutorials helped their grades. Eighty-five percent of the students recommended that faculty *in other departments* place course materials for their courses on the World Wide Web. Ninety-one percent of the students noted that access to course materials on the Web helped their learning. Ninety-three percent of the students thought it was helpful to receive lecture notes/outlines (via E-Mail or the Web) on a topic before I discussed the topic in class.

Responses to questions related to E-Mail emphasized its value as a potential teaching tool. Eighty-four percent of the students considered E-Mail an effective means to receive "team data" obtained from the laboratory experiments. Eighty-four percent also deemed it helpful using E-Mail to read questions that other students submitted to the professor when the questions (and answers) were posted to a mail list.

Responses to questions regarding perception of the importance of computer skills were informative. Students not only perceived an increased importance of computer skills during the progress of their undergraduate education, they also perceived computer skills to be even more essential after graduation. Forty-eight percent believed computer skills were essential in terms of their *current needs as a student.* Sixty-five percent believed that computer skills would be essential in terms of their *future needs as a student* and seventy-five percent thought computer skills would be *essential as a graduate in the work force.* Student confidence in developing these skills did not parallel the expected need. Although seventy-seven percent of the students reported that Biol. 112 increased their computer skills, only forty-eight percent were confident they would have the opportunity to develop computer skills in other undergraduate courses.

Conclusion

Faculty who choose to incorporate IT into their courses can improve computer competency of students. Approximately two-thirds of my students reported that Biol. 112 enhanced their computers skills. All departments should provide students with opportunities that augment computer literacy. An increase in computer experience across the curriculum would promote ongoing computerization of the campus culture and would better prepare students to use computers when they enter the work force.

The survey results clearly demonstrate student enthusiasm for IT. Students not only enjoy this different approach to teaching, they prefer the multimedia classroom to a traditional one. Students find instructional technology helpful and effective. In my experience, students show an increased desire to learn when IT is an integral part of the course.

Multimedia offers faculty a fresh perspective on teaching and learning. More importantly, students recommend this approach to teaching. The potential of instructional technology to implement pedagogical improvement parallels student enthusiasm for this approach. It is an exciting time in higher education. *

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