

A Report on the Fall 1997 Faculty Technology Survey

The Impact of Technology on Teaching and Learning

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I. Introduction

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In October of 1996, Arthur Chickering and Stephen Ehrmann coauthored a paper in Change Magazine in which they laid out a theoretical basis by which the impact of technology on the curriculum could be gauged. The authors suggest that if technology is a tool and different technologies might support different instructional strategies, why not examine if and when technology advances the Seven Principles for Good Practice in Undergraduate Education (1987)? The seven principles were compiled in a study supported by

the American Association for Higher Education, The Education Commission on the States, and the Johnson Foundation.

This report provides an initial examination of faculty perceptions regarding the impact of technology on the teaching and learning process. George Mason faculty, via an e-mail survey, were asked the extent to which (very much, somewhat, a little, not at all) computer technology supported the seven principles. Overall, 196 faculty responded to the survey, 166 used technology in their courses and 30 did not. Not all faculty who use technology in their courses responded to this survey. At some future date, a more comprehensive survey of the entire faculty is planned. For the number of faculty responding to each of these survey items, see [Table 1](#).



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Over three-quarters of faculty thought that student learning was enhanced by the use of technology. Faculty comments to this question ranged from "adds value to an existing course" to "it enhances literacy, learning and collaboration." Read on to discover faculty opinions on the relationship between technology and the Seven Principles for Good Practice in Undergraduate Education.

II. The Seven Principles:

1. Good Practice Encourages Student-Faculty Contact

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"Frequent student-faculty contact in and out of classes is the most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working."

Fifty-nine percent of faculty thought that computer technology enhanced contact between faculty and students "very much." In comments to this question, faculty wrote about "faster," "more reliable," "flexible" and "convenient" contact with students using computer technology.



2. Good Practice Encourages Cooperation Among Students

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"Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated."

Sixty-six percent of faculty thought computer technologies encouraged collaborative learning among students (e.g., team efforts) "very much" or "somewhat." Faculty commented on the students' newfound flexibility to work around their schedules, for students to collaboratively conduct research on the WWW, and the ability of students to develop connections through class distribution lists or e-mail conferencing.



3. Good Practice Encourages Active Learning

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"Learning is not a spectator sport. Students do not learn much just sitting in classes listening to a teacher, memorizing pre-packaged assignments and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences and apply it to their daily lives."

Seventy-two percent of faculty thought computer technology encouraged active learning "very much" or "somewhat." While faculty opinion differed, some faculty thought the use of technology was a type of active learning and others felt that there was the opportunity to make concepts less abstract when using technology.



4. Good Practice Gives Prompt Feedback

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"Knowing what you know and don't know focuses learning. Students need appropriate feedback on performance to benefit from courses."

Sixty-eight percent of faculty said that computer technology helped them give prompt feedback to students "very much." Faculty seemed to agree, whether answering questions about office hours, due dates of assignments, grading or content issues, they could give prompt feedback to students.



5. Good Practice Emphasizes Time on Task

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"Time plus energy equals learning. There is no substitute for time on task."

Sixty percent of faculty who responded to the time on task question felt that teaching with computer technology "very much" encouraged time on task. * Studying lecture notes on web pages," using technology that "engages the students," and noticing students who seem "more focused on-line than face to face" were some of the ways that technology supported time on task. (*The number of faculty (n=17) responding to this item is substantially lower than other survey items since this item was asked at a date later than the original survey.)



6. Good Practice Communicates High Expectations

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"Expect more and you will get it. High expectations are important for everyone--for the poorly prepared, for those unwilling to exert themselves, and for the bright and well motivated."

Faculty were somewhat divided on their response to this question. While 29% said "very much," 26% said that technology did "not really" help them communicate high expectations. Putting examples of high quality student work on web sites and encouraging students over e-mail to be ready for exams and quizzes are two ways faculty communicate high expectations to students. Some faculty said that students seemed to produce better-quality products when they know they'll be published for a potentially large audience on the Web.



7. Good Practice Respects Diverse Talents and Ways of Learning

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"There are many roads to learning. People bring different talents and styles of learning to college. Brilliant students in the seminar room may be all thumbs in the lab or art studio."

One quarter of faculty said that computer technology helped them respect diverse talents and ways of learning "very much," while 28% said "somewhat" and 29% said "not really." From helping the quiet student "speak up" to allowing students to discuss learning

disabilities via e-mail rather than face to face, some faculty felt that technology did help them to respect or become more knowledgeable about diversity in ways of learning. However, others felt it was easier to detect those difficulties face to face rather than via technology.



III. Conclusions

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Faculty agree that technology holds promise for enhancing learning, however it is also seen as a "tool," albeit a very powerful one. The subtitle of the Chickering and Ehrmann article (1996) is "Technology as Lever." To the extent that this lever helps students become better learners, we as an educational community will want to support it. But, we need to know more about which technologies promote which learning goals, so that faculty can make good choices about which technologies and how much they introduce into the curriculum.

Table 1. Mean Scores for Technology and Good Practice Survey Questions

Survey Questions: To what extent does the computer technology that you are using . . .	Mean Score/Average: 4=very much, 1=not really	Number of faculty* responding to each item.
encourage contact between students and faculty?	3.47	(n=152)
encourage collaborative learning among students (e.g. team efforts)?	2.78	(n=154)
encourage active learning?	2.95	(n=144)
encourage time on task?	3.40	(n=17)
help you give prompt feedback to students?	3.49	(n=152)
help communicate high expectations to students (e.g. challenging assignments)?	2.62	(n=148)
enhance your ability to respect diverse talents and ways of learning?	2.49	(n=147)

*The row totals are slightly less than the actual number of faculty who said they used technology in their courses because not every faculty member responded to every survey item.

References for this report include:

- Chickering, Arthur and Stephen Ehrmann, "Implementing the Seven Principles: Technology as Lever" Change, October, 1996, 3-6.
 Chickering, Arthur and Zeldia Gamson, "Seven Principles for Good Practice in Undergraduate Education" The Wingspread Journal, June 1987, special insert.

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