identical, students often found the context of family size considerably more interesting than flipping a coin.

Example A

As a second example, the new Java-based Marine Biology Case Study of the Advanced Placement Computer Science course utilizes simulation on several levels–not games–to provide a wonderful context for problem solving, data structures, and object orientation.

Example B

As a third example, the SIGCSE Project grant for a client/server framework for CS1/2 supports both games and multi-user applications—promoting the use of modern technologies in many contexts, not just games.

Concluding Comments

While space prevents this column from touching all arguments either for or against the use of games in computing courses, it suggests that some arguments for games have corresponding counter arguments, while other arguments apply to various simulations and other contexts as well as games. With the potential negatives—particularly related to the discouragement of women and underrepresented groups—this preliminary discussion might suggest applications other than games be used in courses; at least, instructors should be careful before incorporating games into their courses. Of course, faculty on either side of this debate might bring other points forward as well to swing the debate to one side or the other.

Endnotes and Bibliography

1. Negative perspectives by women of computer games are discussed in several articles in the *Women and Computing* special issue of the SIGCSE Bulletin *inroads*, June 2002.
2. Educational Foundation Commission on Technology, Gender, and Teacher Education, *Tech-Savvy: Educating Girls in the New Computer Age*, American Association of University Women Educational Foundation, 2000.
3. While gathering comparable statistics is challenging, here is one estimate of the relative size of the computer gaming industry. The Interactive Digital Software Association reported that "2001 U.S. sales of computer and video games grew 7.9 percent year-on-year to $6.35 billion, ..." (See http://www.idsa.com/2001SalesData.html). Also, the Information Technology Association of America combines information and communications technology (ICT) products and services within its definition of the information technology industry and reports that "U.S. spending in ICT has increased almost 70 percent since 1992, to almost $813 billion in 2001." (See http://www.itaa.org/news/gendoc.cfm?DocID=120). Putting these numbers together, computer and video games made up 0.78% of total IT sales for the year 2001.

Community College Corner

ACM Two-Year College Education Committee Report

Robert D. Campbell

In spring 2003, the ACM Two-Year College Education Committee organized a task force to produce a new information systems report for the two-year colleges, as both an update to its 1993 *Computing for Information Processing* report and a bridge to the *IS 2002 Model Curriculum and Guidelines for Undergraduate Degree Programs in Information Systems* report. The *Guidelines for Associate-Degree Programs in Information Systems* report - now available in reviewer's draft format - is the result of the work of the task force. The report provides guidelines for the implementation and sustenance of an associate-degree program in information systems (IS). The *Program Considerations* section provides context for two-year college programs in the field of IS; the *Body of Knowledge* section addresses curriculum content. The content is separated into course-based groupings.

The report provides a framework for the development, support, and updating of associate-degree programs in the computing discipline of Information Systems. Graduates of such programs will be able to transfer into the upper division of an IS baccalaureate-degree program or pursue a career in the IS field in an entry-level position. The guidelines will assist colleges in educating potential IS workers with technical computing competencies, as well as necessary workplace skills. Graduates of programs crafted from the guidelines should be able to:

- solve problems within the context of business systems;
- communicate effectively within an organization;
- work productively in team and individual settings;
- demonstrate professionalism; and
- adapt to emerging technologies and new environments.

Colleges should make students aware at the onset of their studies of the distinctions between career and transfer programs, the academic requirements of each, and the associated employment options. Students graduating from a career-oriented associate-degree Information Systems program may enter jobs with titles such as:

- database programmer, database administrator, database manager, records manager;
- systems administrator;
- technical writer, documentation specialist;
- technical support specialist, help desk specialist;
- e-business specialist, e-commerce specialist;

- web designer, web specialist, web developer, webmaster, instructional designer;
- programmer, applications programmer, programmer/ analyst, information systems developer;
- business process specialist, business automation specialist, decision support specialist; or
- computer sales associate.

Increasingly, the area of information systems has become critical to the operation of many organizations; colleges should ensure that all IS students are familiar with the nature of this field and the expectations of the workplace. Information systems employees must demonstrate ethical behavior and professionalism, adhere to codes of conduct, safeguard confidentiality, and respect privacy. They must take responsibility for their actions, be accountable to the organization, appreciate the impact of their work on others, and demonstrate effective and efficient work practices. This field also demands that professionals engage in an ongoing process of professional growth and development to ensure that their skills and abilities remain current with ever-changing technology. Any implementation of these guidelines must ensure that graduates can work within this framework.

In addition to the required and elective information systems courses, a college must design a degree program to fulfill other objectives as well. These include providing students with a level of mathematical knowledge and ability, familiarity with the scientific method of discovery and reasoning, effective written and oral communication skills, fluency with business processes and decision-making techniques, and the ability to work cooperatively and effectively as team members. Any implementation of the guidelines, therefore, should include assignments, projects, or courses that ensure all graduates can demonstrate:

- effective writing, speaking, listening, and presentation skills;
- appropriate abilities in mathematics;
- critical analysis, problem-solving, and decision-making techniques;
- familiarity with the social sciences, and arts and humanities; and
- effective interpersonal skills.

The student performance objectives that constitute the body of knowledge for associate-degree programs in information systems are grouped into eight courses, namely:

- DMD: Database Management and Design
- IIS: Introduction to Information Systems
- NT: Networking and Telecommunications
- PR: Programming
- SAR: System Analysis and Requirements
- SHS: System Hardware and Software
- UCA: Using Computer Applications
- WM: Web and Multimedia Information Systems

The report details the specific student performance objectives for each course. Each entry is described as a measurable performance objective and uses the appropriate verb to denote the intended depth of understanding. Table 1 summarizes the Associate-Degree Information Systems core curriculum.

The ACM Two-Year College Education Committee expresses its gratitude for the outstanding work of the task force in the development of the initial draft report and to the reviewers for their valuable feedback. We urge all interested parties to visit the Committee's website at www.acmtyc.org to obtain a copy of the *Guidelines for Associate-Degree Programs in Information Systems*.

Table 1

First Semester	**Second Semester**
IIS: Introduction to Information Systems	SHS: System Hardware and Software
UCA: Using Computer Applications	PR: Programming
Third Semester	**Fourth Semester**
DMD: Database Management and Design	WM: Web and Multimedia Information Systems
NT: Networking and Telecommunications	SAR: System Analysis and Requirements

Upsilon, Pi, Epsilon

Scholarships, Awards, Advice, and the Abacus

Jeffrey Popyack

Greetings! One of the most pleasant duties of Upsilon Pi Epsilon's Executive Council is awarding scholarships to deserving students. As I write these words, Council has just completed evaluation of another batch of extraordinary scholarship applications. In addition to reporting the winners, I have some advice for applicants and a few words about this year's Abacus Award recipient.

Student Awards

Awards include UPE Scholarships, UPE Microsoft awards funded through the generosity of Microsoft, and UPE/ACM