



**UNIVERSITY OF MARYLAND
UNDERGRADUATES &
INFORMATION TECHNOLOGY**

The Campus Assessment Working Group (CAWG) was created in 1996, linked to University of Maryland's Continuous Quality Improvement Council. CAWG is charged with developing a campus "culture of evidence" in which data and assessment play a key role in campus decision making. CAWG is led by Vice President William "Bud" Thomas and draws together individuals across all divisions of the university. See <http://www.inform.umd.edu/cqi/Umcpcqi/Cawg/> for more information on CAWG.



Introduction

Many good sources of campus data already exist, but often those studying one set of data are not aware of other sources. One of CAWG's missions is to connect and facilitate access to the existing data. Here CAWG and Academic Information Technology Services (aITs) collaborate to profile the undergraduate student experience with information technology at the University.

The CAWG Profiles subgroup has compiled a sourcebook of several recent efforts which collect information from undergraduate students at the beginning, middle and end of their University of Maryland experience (and beyond).

CAWG provided access to sources of data relating to undergraduate student experience with information technology. aITs directed the analysis and prepared the report.

These sources of data touch on many themes. We offer here a first effort to use this combined resource to build a profile of undergraduate students. We believe this project provides a perspective on our students which would be impossible from any single data gathering initiative. We hope that it can be a model for other CAWG Profile partnerships.

Sources of Information

Three campus assessment efforts provided most of the information in this report.

University New Student Census, initiated by the Counseling Center, is administered each summer during orientation. In 1997 it reflects the responses of 3200 incoming freshmen. The 1997 Census also involved a technology advance: approximately half the students used an aITs-developed Web-based form, while the rest used a traditional paper form.

Beginning Student Survey was administered in 1996 and 1997 in the eighth week of the fall, reflecting 1100 and 1400 students, respectively. It was administered with the broad cooperation of instructors in EDCP and HONR101, with small numbers from MATH140, PSYCH100 and ENGL101 included as pilot studies.

UM Student Survey is a new effort begun in 1998. It is intended to reflect the opinions of students with experience on campus. It was administered with the cooperation of the Professional Writing classes in March, representing 1400 students, primarily juniors and seniors. It is intended as a continuing project which will be revised and used every other year, alternating with another instrument which will provide national and peer norms.

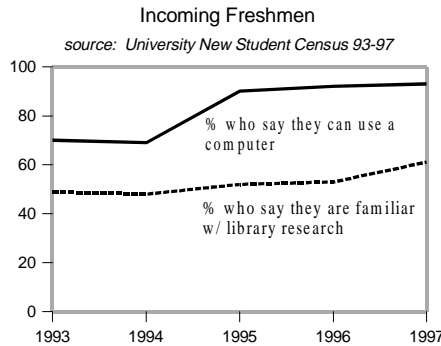
In addition, aITs has provided supplemental information based on data and experience accrued over FY97 and FY98.



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Entering Students

It is obvious that students are arriving at the University with increasing levels of computer familiarity. The University New Student Census, administered each summer during orientation, provides a picture of this trend for incoming freshmen.



NOTE: the question used to assess ability to use a computer differed from year to year.
 1993: Agreement with "I know how to use a computer."
 1994: Disagreement with "I do not know how to use a computer."
 1995-97: "What kind of computer are you most comfortable with? PC, Mac, other, not comfortable using any computer." The chart shows percent other than "not comfortable with any" response.

This trend allowed the innovation of Web-based data collection for the University New Student Census itself. A paperless survey was developed by the Counseling Center and aITs. It was piloted with half the sample in 1997 and used exclusively in 1998.

Incoming freshmen report a high degree of familiarity with computers.

source: 1997 University New Student Census (~3200 incoming freshmen during orientation)

Computing environments previously used:

10% unix	33% Mac	80% Win 3.1	83% Win 95
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What kind of computer are you most comfortable working with?

3% other	7% not any	16% Mac	74% IBM compatible
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Compare with 1995 data:

3% other	10% not any	23% Mac	64% IBM compatible
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I am not comfortable using word processing programs. 73% disagree/strongly disagree

Freshmen report strong expectations that they will be using computers in their college careers.

source: 1997 University New Student Census

I expect to use campus computing resources. 81% agree/strongly agree

Many have access to their own computers.

source: 1997 University New Student Census

	In res halls	Not in res halls
Will you be using your own computer for coursework? (Yes)	72%	78%
I will have my own desktop available to me. (Agree/strongly agree)	64%	61%
I will have my own laptop available to me. (Agree/strongly agree)	24%	20%

NOTE: 85% of the respondents said they would be living in the residence halls.

Reported familiarity with computers differs little between ethnic groups. However, African Americans and Hispanics are less likely to have access to their own computer compared with all other groups.

source: 1997 University New Student Census

Will you be using your own computer for coursework? (Yes)	African American/Black	Hispanic	All
	56%	68%	74%

In FY99, nine WAM Labs and 29 Open Workstation Labs will provide access to:
 584 Intel/PCs
 247 Macs
 180 unix workstations.

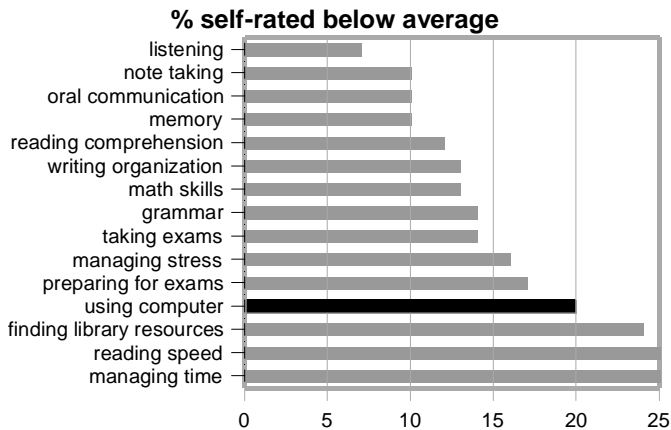
In 1997, every residence hall room had a 10 Megabit/sec network connection. By the end of the 97-98 academic year, 4,592 (53%) residents were using this connection.

In addition, in Spring 98 the campus modem bank was upgraded to 386 high speed (56K) dial-up lines. Usage limits were instituted to ensure fair sharing of this resource.

Student Experience with Information Technology at the University

A substantial number of freshmen rate their computer skills as below average, especially in relation to other skills.

source: 1997 Beginning Student Survey (~1400 freshmen in fall classes)



Students want opportunities to learn new computing skills.

source: 1997 University New Student Census

	I can do it.	I'd like training.
Manipulate image or sound file	24%	72%
Use mark-up language (e.g. HTML)	14%	69%
Develop a spreadsheet	56%	67%
Write a program	24%	65%
Browse the Web	78%	49%
Use email	71%	48%
Use a word processor	92%	43%

NOTE: due to differences between the online & scanned questionnaires, this is based only on the 1669 respondents who used a paper form.

Enrollment in aITs Peer Training classes increased by 32% in FY97, for a total of 1,484 undergraduates and 2,292 overall. Four new courses were added: Intro to Photoshop, Intermediate UNIX, Intermediate & Advanced HTML. Interest in word processing courses declined; these are being replaced with more specialized training. aITs also began a new student course leading to a letter of proficiency in Web design.

In Spring 1998, there were 100 listservs and 61 mail reflectors devoted entirely to class email, compared with 88 and 30, respectively, in Spring 1996.

In FY97 The Institute for Instructional Technology, sponsored by aITs and the Center for Teaching Excellence, provided training to 103 faculty in a variety of modules including Web Development, Presentation Graphics and Network Technologies.

By the end of FY97, the aITs inforM system provided more than 100,000 files, supported more than 700 faculty & staff Web developers and served over 3 million hits per month. Other faculty are supported by college and departmental systems.

Even early in their UM careers, students report high use of computers.

source: 1996 Beginning Student Survey (~1100 freshmen in fall classes)

So far this semester, I have been able to use computers for assignments. 92% agree/strongly agree

Upper class students report a moderately high use of both email and Web resources in their major classes.

source: UM Student Survey (~1400 juniors & seniors in Professional Writing classes, March 98)

Instructors in major use email to communicate with class. 64% agree/strongly agree

Instructors in major use Web for instructional purposes. 48% agree/strongly agree

Agreement with both statements: 40%

Upperclass students who report instructional use of both email and Web report greater comfort with other campus technology.

source: UM Student Survey

"Use both email & Web" (N=560)	Not "use both" (N=830)
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Testudo is easy to use.	65% agree/strongly agree	55% agree/strongly agree
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Upperclass students who report instructional use of both email and Web are also more likely to express overall satisfaction with UM than other students. (However, there are other instructional items that are even more strongly associated with overall satisfaction, e.g. "Instructors set expectations for honesty and in academic work.")

"Use both email & Web" (N=560)	Not "use both" (N=830)
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Cost of attending is reasonable.	41% agree/strongly agree	31% agree/strongly agree
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I made the right decision to come here.	72% agree/strongly agree	64% agree/strongly agree
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All in all, I would enroll here again.	66% agree/strongly agree	57% agree/strongly agree
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Putting Campus Assessment Data to Use

The use of campus assessment data provides insights into student use of IT and helps inform decision-makers in the directing of services. For example, student responses about training needs can influence the training agenda in subsequent semesters. Preferences for type of computer (e.g., PC versus Mac) or computing environment (e.g., Mac operating system, Windows NT, Windows 95, etc.) may also direct purchases or upgrades in computing labs. Effective use of this data requires that constituent groups be informed of assessment instruments and corresponding questions of interest, and be provided with timely access to results.

It is reassuring that much of the information obtained in the development of this profile confirms other estimates of anticipated needs based on other data collection initiatives. For example, decisions about what peer training courses to offer have been based on attendance and course evaluations; the campus assessment data confirms that process.

A few surprises appeared as well. The degree of the difference between ethnic groups in personal ownership of computers is important information for setting policy regarding access and availability of public resources. Likewise, the association between reported instructional use of IT and satisfaction with the University may encourage a broadening of pedagogical methods and may even have implications for retention and overall graduation rates. We hope for continued efforts to better assess the influence of IT on learning outcomes and other institutional goals.

Challenges of Using the Data

Several different student surveys provided data for this report. A major challenge was the lack of connections between these surveys to allow for comparisons. Repeating questions from the University New Student Census, which is given to incoming freshmen, in the Beginning Student Survey and the UM Student Survey would allow for comparisons to measure the effectiveness of information technology use over the course of the undergraduate experience.

Besides the lack of comparability between surveys, technology questions within the same survey were changed from year to year. Rapid advances in information technology is a factor in this particular area—technology questions that were relevant one year can be obsolete the next. In some cases, there was only one year (usually the most recent) of data points available. In other situations, the questions were changed or altered to the point that comparison from one year to the next was difficult. As the technology changes, so must the questions that we ask. In the short term, perhaps

additional assessment data could be gathered through more informal and flexible means such as interviews or focus group meetings. However, it will be important to ensure the representativeness of such samples.

One survey instrument (Noel-Levitz Student Satisfaction Inventory, not reported here) would have allowed for comparisons with peer institutions, but only one question pertained to technology and it was very general in nature ("Computer Labs are adequate and accessible"). Access to other national instruments with more relevant technology questions might provide better peer institution measures.

Technology as a Tool for Collecting Information

The use of technology to conduct assessment activities and process complex data sources brings both promise and peril. It will certainly make it easier over time to take distinct assessment instruments and integrate them for purposes of analysis based upon common identifiers such as a student identification number. The potential is also there to run analyses based upon distinct data sources such as grades, registration records, and a myriad of other possibilities (login time to computing accounts, access to library or physical resources, etc.) While such analyses may prove useful, we must uphold the value that a university community places upon the privacy of personal information and assure that we do not make secondary uses of data without sufficient notice and consent. Furthermore, as we use technology to conduct research, we must assure that we consider ethical concerns about human subjects and unnecessary intrusions.

Conclusion

aITs and CAWG are pleased to make this first comprehensive synthesis of recent information on our students. It represents a first look at a moving target. Information technology—and access to it—has been changing rapidly. Assessment efforts need to continue, balancing flexibility with consistency.

Many other themes could be developed from this information. We hope that others on campus will make use of these sources and will contribute to the improvement of campus assessment efforts in the future.

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