

## **The Next Generation of Students: Slackers... Not, NetGeneration...YES**

Think students just use the web for surfing? Well, you're right and you're wrong!

From previous surveys at the University of Michigan (1998-2000) student reported their number one use of the web was surfing but we've dug deeper this year with some surprising results. Students need and use web tools for more than just surfing! Students at the University of Michigan work harder and smarter than the public or even their professors might think.

The 2000 Student Survey of Uses, Resources and Needs of Information Technology reveals that students use the web for much more than idle browsing and want to use it for even more for school and work related activities. Similar to their older counterparts in the workforce, students use the web for getting assignments, checking and updating their records and doing research. They see a strong need to use the web for even more of their work. But most important, they are asking for tools to do their work. Some of these tools are just starting to be provided by the University while others are in the design or beta stage. The following analysis builds a strong case for supporting student work with these tools.

During fall term 2000, over 1400 students filled out a 15-page survey on their use, resources and support of information technology at the University of Michigan<sup>1</sup>. These 1400 students represented a stratified random sample of 38,000 students enrolled that term. One of the questions (36) asked students to indicate what use they would like to make of the web. A long question with 34 possible uses asked them to indicate if they already use the web for that purpose, would very much like to use, would somewhat like to use or would not like to use at all. These responses seemed to roughly fit a continuum and we thought it might be useful to factor analyze the responses<sup>2</sup>.

Here then is the report on how the students responded, our interpretation of the factors, and implications for information technology support at the University based on the results.

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<sup>1</sup> The entire blank survey and initial results are available at <http://carat.umich.edu/> under projects and student survey.

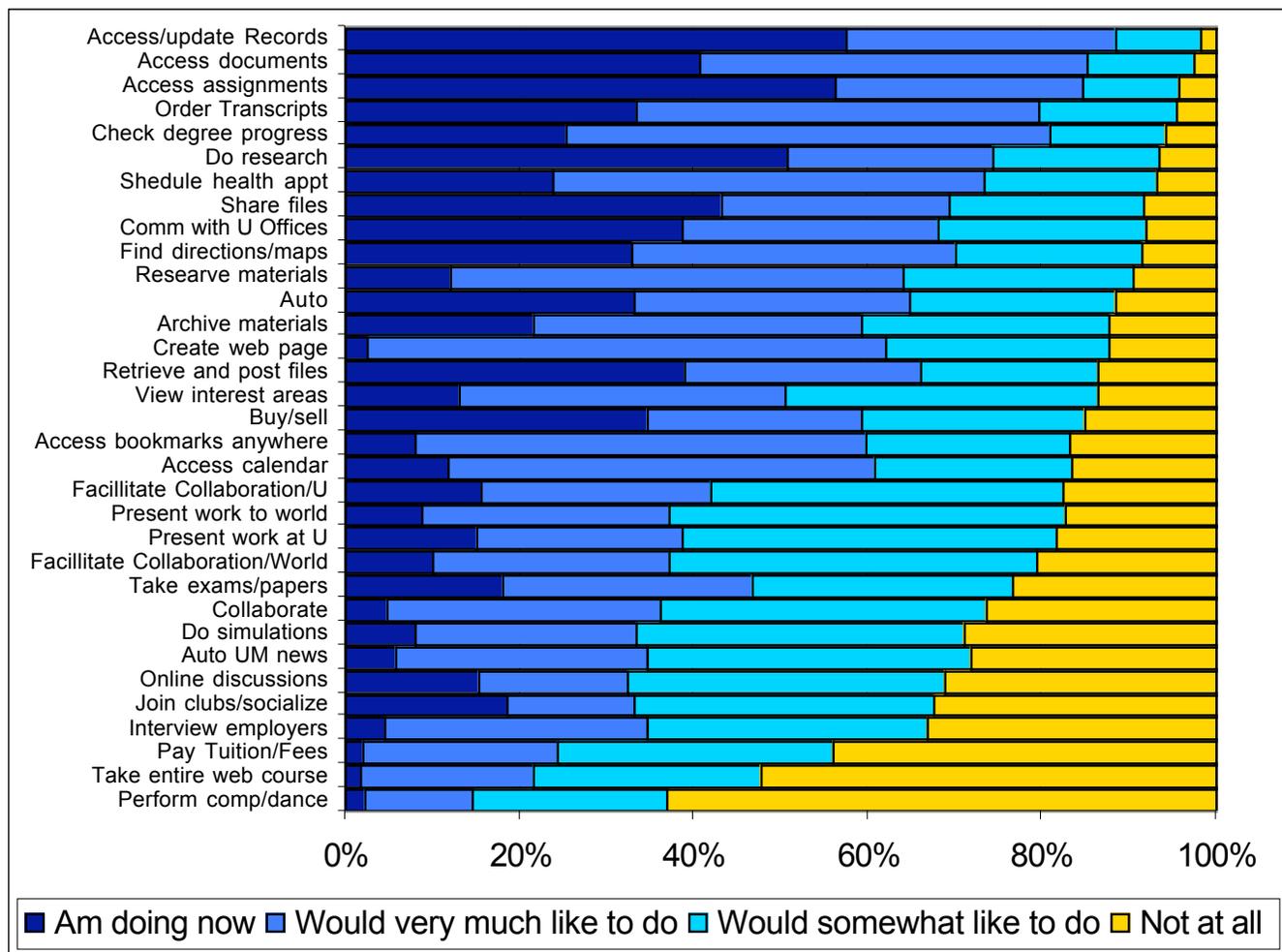
<sup>2</sup> Factor analysis helps to explain the variation in student response but does not tell whether students would like to use or would not like to use the web for a purpose.

First the question:

36. To what extent would you like to use the Web for the following? (Please circle your responses.)						
		Not using but would like to			Already Use the Web for this	Don't Know
		Not at all	Some-what	Very much		
A.	Pay U-M tuition and fees					
B.	Order transcripts					
C.	Access, possibly update, my personal U-M records					
D.	Access electronic documents from anywhere					
E.	Buy and sell things (e.g., books, tickets)					
F.	Take exams and submit papers					
G.	Access course assignments and materials					
H.	Share files with other students, instructors and others					
I.	Interview with prospective employers					
J.	Collaborate with others using streaming video and/or other advanced technology applications					
K.	Participate in online discussions					
L.	Conduct research					
M.	Present work to other people at U-M					
N.	Present work to other people around the world					
O.	Conduct simulations or visualizations					
P.	Facilitate collaboration with people at U-M					
Q.	Facilitate collaboration with people around the world					
R.	Perform compositions, dance and/or other music/art activities					
S.	Join clubs, socialize, etc.					
T.	Communicate with U-M administrative offices, academic advisors and others					
U.	Check progress toward my degree, analyze the impact of changing my current program of study					
V.	Archive materials online					
W.	Reserve course materials at the library					
X.	Take an entire course on the web					
Y.	Access my bookmarks from any computer					
Z.	Access my personal calendar, course schedule, to-do list, and address book from any computer					
AA.	Automatically receive bulletins and announcements from my school or college					
BB.	Retrieve and post files to my personal IFS space					
CC.	Automatically receive U-M news (e.g., from the Michigan Daily and University Record)					
DD.	View a variety of campus events by area of interest					
EE.	Find directions and/or maps to a variety of campus locations					
FF.	Review course and faculty evaluations					
GG.	Schedule an appointment at U-M Health Services					
HH.	Create my own personal Web page					

Notice the question isn't "Are you using it or not." But asks for use and value. (I'm not using it and don't want to use it. Talk about a powerful message) Also notice that this is a very long question asking about 34 similar and differing types of use. This allows us to graph, and do some pretty fancy analysis techniques. And here are the results. First, the responses in a bar chart and, using color graphics, sorted from most used/wanted to least desired:

**To what extent would you like to use the Web for the following?**



Looking at the deep blue bars, it is clear that over 50% of the students already use the web for accessing/updating records, accessing assignments and research. Further, in addition to information on what is most used (access/update records), the chart provides information about the least used but most wanted (an appointment with the health service) and those not done at all (take an entire web course). What the chart doesn't provide is information on how these responses might group together to give insight into common themes. We needed more analysis

We then tried a factor analysis. Factor analysis groups the students by variation in their responses and can be used to find out how much variation can be explained by various factors and provides a basis for concluding common themes.

The factor analysis of the questions grouped and sorted by strength of factor and common groupings of questions.

Would you like to use the web:	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11
Facilitate collaboration with people at U-M	0.71	0.08	0.02	0.07	0.15	0.03	0.03	0.06	0.02	0.02	0.01
Facilitate collaboration with people around the world	0.71	0.06	0.00	0.12	0.15	0.06	0.01	0.02	0.04	0.03	0.02
Present work to other people around the world	0.65	0.04	0.07	0.00	0.12	0.03	0.08	0.09	0.07	0.03	0.01
Present work to other people at U-M	0.56	0.02	0.01	0.12	0.14	0.01	0.08	0.00	0.06	0.10	0.02
Conduct simulations or visualizations	0.54	0.02	0.06	0.06	0.22	0.09	0.10	0.00	0.12	0.18	0.03
Conduct research	0.36	0.34	0.01	0.22	0.18	0.07	0.00	0.12	0.18	0.09	0.10
Access, possibly update, my personal U-M records	0.06	0.66	0.08	0.03	0.06	0.03	0.03	0.04	0.03	0.05	0.02
Access electronic documents from anywhere	0.10	0.63	0.08	0.07	0.08	0.03	0.01	0.06	0.06	0.17	0.09
Order transcripts	0.07	0.60	0.26	0.15	0.13	0.08	0.11	0.17	0.11	0.11	0.19
Buy and sell things (e.g., books, tickets)	0.02	0.38	0.00	0.20	0.07	0.02	0.18	0.32	0.11	0.10	0.15
Share files with other students, instructors and others	0.23	0.34	0.05	0.37	0.12	0.00	0.11	0.04	0.18	0.03	0.09
Communicate with U-M administrative offices, academic advisors and others	0.20	0.34	0.21	0.01	0.27	0.01	0.07	0.20	0.02	0.03	0.09
Check progress toward my degree, analyze the impact of changing my current program of study	0.00	0.29	0.10	0.06	0.12	0.00	0.33	0.12	0.00	0.06	0.22
View a variety of campus events by area of interest	0.02	0.15	0.69	0.06	0.08	0.05	0.00	0.08	0.08	0.09	0.17
Automatically receive U-M news (e.g., from the Michigan Daily and University Record)	0.12	0.20	0.68	0.11	0.03	0.06	0.03	0.05	0.10	0.00	0.12
Automatically receive bulletins and announcements from my school or college	0.08	0.25	0.47	0.15	0.11	0.18	0.11	0.04	0.07	0.18	0.34
Find directions and/or maps to a variety of campus locations	0.01	0.07	0.39	0.03	0.24	0.03	0.01	0.04	0.06	0.24	0.32
Review course and faculty evaluations	0.05	0.07	0.30	0.04	0.04	0.10	0.14	0.07	0.05	0.45	0.04
Take exams and submit papers	0.05	0.09	0.00	0.62	0.10	0.07	0.04	0.07	0.03	0.05	0.04
Access course assignments and materials	0.03	0.39	0.01	0.42	0.01	0.01	0.03	0.18	0.16	0.14	0.08
Participate in online discussions	0.22	0.04	0.02	0.41	0.01	0.02	0.11	0.00	0.13	0.12	0.03
Take an entire course on the web	0.17	0.20	0.03	0.35	0.10	0.23	0.19	0.07	0.28	0.02	0.19
Collaborate with others using streaming video and/or other advanced technology applications	0.25	0.10	0.06	0.29	0.15	0.10	0.01	0.18	0.06	0.12	0.13
Create my own personal Web page	0.10	0.12	0.03	0.02	0.65	0.06	0.06	0.06	0.01	0.03	0.01
Retrieve and post files to my personal IFS space	0.06	0.30	0.13	0.04	0.40	0.14	0.02	0.09	0.09	0.16	0.16
Access my personal calendar, course schedule, to-do list, and address book from any computer	0.01	0.00	0.06	0.01	0.01	0.74	0.01	0.01	0.00	0.03	0.06
Access my bookmarks from any computer	0.01	0.06	0.05	0.03	0.07	0.67	0.05	0.00	0.04	0.11	0.09
Reserve course materials at the library	0.02	0.00	0.02	0.03	0.06	0.16	0.62	0.04	0.04	0.20	0.08
Archive materials online	0.18	0.12	0.03	0.07	0.04	0.08	0.59	0.04	0.10	0.09	0.02
Pay U-M tuition and fees	0.05	0.04	0.08	0.05	0.08	0.02	0.03	0.82	0.08	0.01	0.00
Perform compositions, dance and/or other music/art activities	0.07	0.08	0.02	0.04	0.03	0.07	0.02	0.00	0.71	0.03	0.00
Join clubs, socialize, etc.	0.03	0.16	0.24	0.09	0.11	0.08	0.02	0.12	0.59	0.11	0.00
Schedule an appointment at U-M Health Services	0.05	0.04	0.05	0.05	0.03	0.15	0.03	0.05	0.00	0.68	0.05
Interview with prospective employers	0.10	0.07	0.04	0.30	0.11	0.06	0.05	0.00	0.09	0.17	0.56

From these factors we can develop strong themes students are telling us about the conceptual framework they value. Notice most that some of these have little to do with technology or even the web but most about how they like to work and learn!

It's fairly clear that the first factor, explaining the most variance is about collaboration and work. The second factor is about accessing information and interacting with the administration of their work.

We'll let it be an exercise for the reader to infer the themes of the other factors but that they might include push-pull abilities, perhaps WINWINI (What I Need When I Need It) and others. Even more interesting are the 'onesies and twosies' that really don't fit any theme.

Just looking at the preferences for using the web and the factors we realized we had helped to start defining the NetGeneration. We have a group of students that demonstrate what they value using the web, that they value collaboration, accessing information and organizing their work using the web. Not only does that sound like a group of very alert students, but also a set of values important for their coming life's work. So, Slackers...NOT. We believe we have evidence for the NetGeneration and it isn't bleak!

Also, we can take away from this analysis that asking our students a rich set of questions and asking it such a way that it looks at more than use and but asks for value, we can provide insights far beyond technology and even into what students really value in their learning career.

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