THE UNIVERSITY OF MONTANA

Cloud Computer Lab Committee Report

Cloud Computer Lab Committee

11/29/2011

The committee examined the state of The University's computer labs with the specific intention to determine if a cloud computer lab pilot could be implemented in spring, 2012. The findings show that software licensing is not yet affordable for a cloud lab but, with increasing pressure from the academic community, this may be a viable option in 2013. In the meantime, the committee proposes a number of initiatives that would assist students in their need to access academic software and to address the inconsistencies across the general and departmental computer labs.

Committee Charge

The initial charge of this committee was to oversee a pilot for a cloud computing lab which would provide UM campus constituents 24/7 access to software on both lab and personally-owned computers. Discussions with IBM and a proposal from that company for a hardware environment and the front-end scheduling software required to access application software via the web showed promise and led to the concept of a pilot to test this approach to licensing and utilizing software such as Microsoft Office, Adobe Creative Suite, SPSS, and others. In fact, the interest in the Student Computer Fee Committee was so high that funds had been allocated to help fund this pilot initiative. However, research into the cost of licensing applications on a virtual server for concurrent use by campus constituents, regardless of user computer ownership, showed that most companies are not prepared to offer cost-effective licenses in a virtual environment. Specifically, the issue with some software vendors is that software hosted on a UM server cannot be licensed for use on a student or employee-owned computer without paying extravagant fees. These costs make the concept of a cloud lab pilot untenable until such time that virtual lab software licensing is more affordable.

As a result of the cost issues associated with a cloud lab pilot, the charge of the committee was revised. The new charge from Provost Perry Brown was as follows:

"The revised charge for this committee is to identify, evaluate, and recommend ways in which student access to computer lab services could be enhanced. I would like the committee to determine the issues associated with the current computer lab model at UM and the level of prioritization of these issues relative to other needs on campus. For example, is resolving these issues critical to our retention endeavors? Is resolving them critical to effective learning? Against those requirements, the committee needs to consider identifying innovative but affordable solutions. Cloud computing might well be the best alternative, but I would recommend a study of peer universities to understand the successes and failures of their attempts to address lab computing issues. Finally, the committee is asked to provide me with a recommendation, along with a cost-benefit analysis, on how to proceed. I expect that this recommendation will be completed during the fall semester with the intention to implement the findings in spring, 2012. Thus, if we do a pilot experiment, we do it in spring once your recommendation is to me."

Committee Members

Loey Knapp, CIO, Information Technology (Chair)*

Lee Banville, Assistant Professor, School of Journalism*

Tom Gallagher, Associate Professor , Dept. of Applied Computing and Electronics*

Greg Twigg, Associate Professor, School of Media Arts

Stacey Gordon, Professor and Director, School of Law Library

Robert Squires, Associate Director, School of Extended and Lifelong Learning*

Eric Tangedahl, Director of Technology, School of Business Administration*

Bonnie Allen, Dean, Maureen and Mike Mansfield Library*

Don Earl, IT Specialist, Institute for Educational Research and Service

Randy Gottfried, Manager, Presentation & Technology Services, IT*

Diego Baccino, Student*

Erika Noble, Student

Evin Ozer, Student

Lily Oliver, Student

Note: * indicates committee attendance throughout the process

The Process

The committee met on a regular basis from its inception in April, 2011, through November, 2011. The primary source of information relative to student satisfaction with computer lab services was a student survey which collected responses from more than 1,000 students. The survey questions and responses are presented in detail in Appendix A. The survey response were analyzed and summarized into key findings.

The second source of information came from meetings with Microsoft (Office), Adobe (Creative Suite and Acrobat), and IBM (SPSS), and other software vendor representatives over the course of six months. See Appendix B for details

The third source of information came from interviews with multiple universities across the United States relative to their experience with cloud lab computing.

The fourth source of information came from the Educause 2011 national conference, attended by Loey Knapp and Bonnie Allen.

The analysis of collected information was used as a base for the committee members to suggest and evaluate possible initiatives that could address identified, significant problems, taking into consideration the constraints imposed by corporate licensing structures.

Findings

Survey Results

The committee analyzed the survey responses and summarized their findings with respect to student issues with access to computer lab services on campus. The key findings are as follows:

- Students use the labs, appreciate having them, but have some issues with access due to short hours or use of the labs by classes. However, it is not clear that additional lab hours are a pressing need.
    - 56% of respondents are satisfied with current lab hours while 44% are not.
    - 40% of respondents are satisfied with access to software required for UM classes.
- The top five software applications in use on campus are:
    - Microsoft Office (78%)
    - Adobe Creative Suite (19%)
    - Adobe Premier (15%)
    - SPSS (9%)
    - ArcGIS (6%)

  All other software applications were used by less than 5% of the respondents.
- 92% (824) of respondents have access to a computer outside of the UM computer labs.
- 75% of respondents have access to a DSL/Cable or 3G internet connection on a regular basis and 95% of respondents have the means to access the internet in some way.
- 67% of respondents approve the use of funds to provide 24/7 access to software and 66% are in favor of cloud services.
- Availability of software across labs is inconsistent and information on what software is available in the various labs is lacking but
    - 40% (345 of 873) are satisfied with access to software for classes.
    - 84% reported problems with getting a seat in a lab due to fullness, closure or use of the lab by classes.
    - 1% (11 of 873) said the lab didn't have the software needed.
- The hardware and bandwidth in some labs does not meet needs and expectations.
- Some students feel it would be helpful to have additional assistance from lab monitors.
- Some students would like to see the library to be available 24/7.
- Some students feel that software is too expensive for purchase and use on a personally-owned computer.
- There are some issues with printing across campus in that users cannot predict 'how to print' from one location to another.

- Of the 258 comments provided through the survey, the breakdown of comments is summarized in the table below.

Category	Number of Comments	% of Total Comments
Hardware	36	14%
Internet Speed	6	2%
Lab Access	23	9%
Printing	10	4%
Software	52	20%
Support	20	8%
Wireless	8	3%
Other	44	17%
No Issues	59	235

Vendor Discussions

Discussions have been held with IBM, Microsoft, and Adobe and other companies have been surveyed to determine their provision of cloud lab licensing structures. In June, IBM announced that SPSS could be licensed in a virtual environment at a reasonable add-on cost to UM's current license fees. Adobe has offered a structure by which UM would pay approximately $275,000 for licenses that would cover all employees and labs and which would then allow some number of students to access the software via a virtual environment from their personally-owned computers (250 students per year but negotiable). Microsoft has offered the use of their software in a virtual environment by all students if licenses are purchased for all students, e.g. 16,000 licenses. However, Microsoft has also implemented 80% of the functionality of Word, Excel, and PowerPoint in their own cloud, available to UM students through Live@Edu, known as UMConnect on campus. However,there appears to be a lack of knowledge of the Microsoft services in UMConnect. Appendix B provides detailed information on the status of the provision of a virtual lab license by all vendors providing software listed in the students' survey response.

At the time of this report there is no reason to believe that Adobe, Microsoft, and other vendors will create the appropriate licensing structure for a virtual lab within the next year although there is pressure from the higher education sector to do so. As a result, of the top five software applications in use at UM, SPSS and ArcInfo (ESRI) can currently be licensed in a cloud lab computing environment.

Interviews with Other Universities

Several other universities were contacted to determine whether they have implemented a cloud lab solution and, if so, how they have solved the licensing issues. It is apparent that the majority of those offering a cloud lab do so for their engineering schools rather than for liberal arts schools. This may be due to the fact that more mathematical and statistical software is available with the requisite licensing structure.

The problem vendors for UM at this point in time are Microsoft and Adobe. Some universities have implemented cloud lab solutions which offer Microsoft and Adobe products so the question is what licensing model are they following. Five out of seven of the schools interviewed have site licenses for Microsoft so can then provide the software in the cloud legally. Two schools do not have such a Microsoft license and six of the seven schools do not have Adobe site licenses. The only conclusion that can be drawn is that these schools are providing software via a cloud but are doing so in violation of the vendor's licensing rules. If UM were to follow this practice, the University could be subject to penalties for use of software in an unauthorized manner and, as a result, this course of action could not be pursued.

Another solution to the software access issue has been the implementation of 24/7 computer labs. Temple University, specifically, has built a 700 seat high-tech computer lab which is open

day and night and which they claim has become the social focal point on campus. Since Temple is located in an urban setting, conclusions cannot necessarily be drawn relative to the UM campus. However, this model inspired the implementation of the 'Tech Lounge' on the second floor of the UC which offers wireless, access to electrical outlets, configurable furniture, email stations, and large displays for collaborative computer sessions. This lounge will be open longer hours than other computer labs and will be staffed with monitors that have the ability to help solve student software issues. As this lounge is just opening at the time of this report no conclusions can be drawn as to the use and value of such an offering.

EDUCAUSE National Conference, October, 2011

Loey Knapp and Bonnie Allen attended the EDUCAUSE conference. Loey attended three sessions that specifically addressed the issues relating to software licensing structures in a virtual computing environment. In all of the sessions, frustration was expressed on the part of more than thirty universities and colleges with the lack of affordable virtual licenses, particularly from Microsoft and Adobe. At this time neither vendor, along with many others, has agreed to concurrent licensing in a virtual lab environment that would allow campus constituents to access software on a personally-owned computer. Concurrent licensing is available for campus-owned computers. There is a movement to ask the EDUCAUSE organization to advocate for such licensing structures given the widespread need on the part of universities and colleges.

Analysis

The revised charge (April 14, 2011) to the Cloud Computing Committee required the committee is to identify, evaluate, and recommend ways in which student access to computer lab services could be enhanced. The charge breaks down into the following categories:

1. "Determine **the issues** associated with the current computer lab model at UM and the level of **prioritization** of these issues relative to other needs on campus. For example, is resolving these issues critical to UM's retention endeavors? Is resolving them critical to effective learning?
2. Against those requirements, the committee needs to **identify innovative but affordable solutions**. Cloud computing might well be the best alternative, but I would recommend a study of peer universities to understand the successes and failures of their attempts to address lab computing issues.
3. Finally, the committee is asked to provide me with a **recommendation**, along with a cost-benefit analysis, on how to proceed. I expect that this recommendation will be completed during the fall semester with the intention to implement the findings in spring, 2012. Thus, if we do a pilot experiment, we do it in spring once your recommendation is to me."

The Cloud Computing Committee administered an online survey to students in early May, 2011. The thrust of the survey was not the computer lab model but rather ***access to software*** that is licensed for student use by the university. The questions explored preferred modes of access to software such as direct download to student owned hardware and access to university-owned computers that are equipped with software. Questions were asked about overall satisfaction and ability to gain access to software needed for academic support. The survey attracted 1,015 respondents. See Appendix A for details on questions and responses.

While the survey did not specifically address the satisfaction of the computer lab model, the responses and comments provide information about the current computer lab model. External technology reports from Educause, Chronicle of Higher Education, surveys of other institutions, and recent discussions on the Missoula campus surrounding IT strategic planning provide context and addition information to the survey and inform the issues and recommended solutions in this report.

<u>Conundrum about computer labs</u>

1. **Why the continuing demand for labs given the personal ownership of computers and wireless access?** With the high percentage of students owning computers and the availability of wireless networks, it would be reasonable to predict the lessening of the demand for computer labs but that does not seem to be the case at the University of Montana with similar experiences reported at other university campuses. While the

University of Montana survey did not ask about general use of the computer labs, those reporting difficulty in getting into a lab to access software (84%) would indicate a demand for the labs

2. **The demand for computer labs (campus-based technology spaces) goes beyond software.** Anecdotal evidence points to convenience of campus computers (rather than carrying around a laptop and being responsible for understanding connectivity to campus networks) and the space to work away from home/dorm distractions are likely drivers for use of campus labs. This is supported by the repeated mention of use of labs to escape distractions, need for lab hours around work and the focus on the library as a place to work. For comparison, the University of Minnesota, Twin Cities Office of Instructional Technology has conducted technology surveys every two years to gain better understanding of trending on that campus. In 2009, the survey of 5,721 students at Minnesota reported 89.1% of its students owning a laptop yet nearly 2/3 of its students used the computer labs. Temple University recently opened a 700 seat lab which is open 24/7 that has become the 'hot spot' of the campus, serving both academic and social needs.
3. **The focus upon the library in the comments for greater hours and more software** availability indicates the importance of this resource to students as they complete their work. The Library has long recognized this broad scope of use and addressed it with the software for general productivity (media editing from Adobe, statistical packages such as SPSS) with the Learning Commons plan as the next big step to advance this model. There is no indication as yet that additional "tech lounges" as is being installed in the UC will replace this demand though they could serve as a placeholder while funding is found for the broader Learning Commons area.

The survey points to some clear areas for improvement in communication about computer labs and software on campus. A governance structure that is driven by the academic mission would address the campus need for coordination of policies and criteria for establishing labs followed with identifying how the shifts in expenditures of existing fee funding sources would be achieved. Establishing polices that support best practice such as centralizing the software licensing through the purchasing office would support the communication and governance. The collaborative role of the purchasing department and Central IT would address the delivery mechanism of software such as cloud based and virtualized.

<u>How critical are the computer labs to our retention efforts and student success.</u>

Increasing convenience factors will be an important element of attracting and keeping students of 2020 according to the Chronicle of Higher Education report, "The College of 2020: Students". This report focused on the need for the working student to be able to take classes on a personal timetable. Comments in the May survey related to expanded hours of the library or computer labs around work hours. An element of convenience is having easily found and understood

information about resource availability and use in order to use time wisely. Better communication around the existing lab service is an immediate and low cost need.

Issues

The current model mirrors the centralized and decentralized IT delivery model seen in other areas of technology on campus. Central IT supports three general computer labs. The sectors also support computer labs for purposes determined by the unit/college/sector with a range of hours, policies, print services and technical support. The selection of software available in the distributed labs is determined by the unit provider with their purpose in mind.

Funding for the general computer labs is primarily the Student Computer Fee. Funding for the distributed labs likely has a variety of sources including the college/sector allocation of student computer fees, donor funds, operational funding and instructional technology funds. To qualify for use of student computer fee funds, the lab has to be available to students, which has likely led to opening up instructional labs to students when the lab in not in use. (See Appendix C for a sample of campus communication concerning labs)

Student comments did not differentiate the labs by types and in the survey referenced the computers in the library, general labs, and the smaller labs in the departments as labs.

Issues Summary:

1. Communication about computer lab services on campus is lacking or confusing.
2. Expectation of the student user that labs quality be consistent.
3. Mixed purpose labs cause confusion for users in determining availability.

Supporting information

1. Communication about labs

   The communication to students about the computer labs is diffuse without a central means of identifying or locating labs.

   - A search of the interactive map of the university web site does not identify the location of any computer lab.
   - Searching the site with the term “computer lab” brings up the mix of unit/college/sector websites providing information on specific school or departmental computer labs.
   - The size of the lab, software availability and hours is reported in varying degrees of detail on each site.
   - Orientation of new students does not provide a comprehensive picture of computers labs on campus

2. Communication about Software

   Software information is equally lacking.

   - A site search for specific software failed to identify the location of that software.

- Survey comments show confusion and some misinformation. For example, the library has SPSS and the capability of reading .pdf files on its computers but students are unaware of this capability.
- The inability of students to access software from some computers on campus is likely the result of licensing software on a departmental level as opposed to licensing at a campus level.

The identification of software available to students for purchase is not obvious, although the UM Bookstore advertises the significant discounts to student for purchase software. Information on free, open source software is also not available.

3. Student expectation of consistency

   Students experience a range of service hours, variety of hardware, software, and printing policies. The diversity of labs across campus presents a confusing array to students.
   - Hours: No two labs have the same hours of operation, even the three general labs under Central IT have different hours. The library is open the latest (1:00 a.m.)
   - An IT Student SWOT analysis (October, 2011) with 11 students identified the following weaknesses:
     - lack of wireless access in the resident halls
     - inconsistent technology
     - departmental IT staff not being able to resolve issues
     - scattered IT departments present multiple steps to "get things done"
   - Polices and maintenance of labs vary as they are determined at the unit level. Survey comments on slowness of the internet, inadequacy of computers, and printing compatibility could be the result of hardware age, maintenance, and policies but reflect unit decisions for support of the labs.
   - There appears to be a lack of governance of computer labs across campus to ensure consistency and adequacy of hardware and software.
   - There is likely an uneven distribution of funds for computer lab maintenance leading to inadequate hardware in some labs
4. Mixed purpose use of labs cause confusion for users
   - Labs that are primarily for instructional use but are available for general use when not in use by a class means a student does not know when it is "open"
   - Mixed purpose use is driven by the need for funds and the student computer fee policy that requires labs to be open for general access if they are to receive SCF funds.
   - Departmental labs are likely to have software that meets the needs of specific classes but may not have more general purpose software
   - There is a need for a baseline of software requirements for campus and to establish a campus standard vs. departmental needs.

Suggested Initiatives

Despite the issues with virtual licensing, the committee concluded that there are a number of initiatives that would significantly improve the computer lab environment at UM. The committee summarized the issues into two categories which can be translated into two goals:

1. Improve the accessibility of software to students.
2. Improve the consistency of the computer lab environments on campus.

With these two goals in mind, the committee discussed and prioritized various initiatives with the following recommendations.

Year 1

1. **Centralize software licensing** for the major applications used across multiple departments and labs. Centralizing software purchases is expected to reduce the cost per license, increasing the number of licenses available to students for the same amount of money.
    A. Conduct an inventory study to determine what software is being purchased and at what levels.
    B. Work with administration to develop an appropriate centralized funding model with appropriate resources.
    C. Work with purchasing and Information Technology to develop a purchasing and distribution model.

    Cost/benefit: there are enormous savings to be had by eliminating the inefficiency of multiple transactions with a single vendor and by buying at a campus level or buying in bulk utilizing Purchasing's negotiation skills. The cost would potentially be an additional resource in Central IT for record keeping and distribution and potentially an additional resource in Purchasing. A detailed cost model must be created to verify these assumptions.
2. **Create a standard software image for use in all labs**, providing a baseline suite of applications that could be enhanced by department-specific applications. This would help ensure the consistency of software available across all labs but is dependent on availability of that software through centralized purchases mentioned in #1.
    A. Determine what software is utilized across the majority of labs,
    B. Utilizing the increased number of available licenses (#1), produce a standard software image,
    C. Ensure all lab managers are aware of the standard image.

    Cost/benefit: The benefit of a standard image is substantial and the cost next to nothing once centralized licensing is implemented.
3. **Implement an internal cloud computer lab** which would provide a concurrent licensing structure for use on UM-owned computers. This is an alternative to the standard software

image and would require fewer licenses. However, it would also require the purchase of a server(s), installation of the appropriate applications software, and the implementation of a license-tracking system. Depending on the internet speed available to the computer lab, this model may be more or less successful.

Cost/benefit: The costs involved in creating an internal cloud computer lab include the purchase of servers, license managers, and additional software licenses. Significant resources would also need to be deployed to get this lab up and running and ongoing resources deployed for maintenance and operations. The benefit would depend on the level of site licensing of software – the more software is licensed for use across campus, the less such a lab is required. If few licenses are purchased, an internal cloud computer lab could make that software more accessible across campus and be worth the investment.

4. **Improve the level of information available to students** regarding the availability and location of software.
    A. Institute a web-based application that shows the distribution of software across campus and the availability of seats at any given time,
    B. Create a web link in OneStop and the Login page that takes students directly the UMConnect documents and Skydrive capabilities,
    C. Create a webpage that provides links to free software that can be downloaded to a student's personally-owned computer.

    Cost/benefit: the benefit of these actions would be great and the investment low as the majority of the work could be done with current resources over the period of six months once work was begun. The primary issue is competition for those resources for other priorities.

5. **Reduce hardware costs** to the departments through bulk purchasing and potentially through a more collaborative distribution of student computer fee funds.
    A. Fund sources are instructional technology and student computer fee funding. The two funds should be evaluated for redistribution and purpose
    B. Work with purchasing to institute an annual or bi-annual bulk purchase of computers to reduce overall cost of hardware,
    C. Encourage collaborative evaluation of hardware needs across campus and prioritization of funds to labs with inadequate hardware.

    Cost/benefit: the benefit of these actions is great and the investment in dollars is low. Bulk purchasing should make new computers more affordable for departments, giving them incentive to recycle them more often. This in turn should improve the hardware capabilities relative to new, more intensive software. Restructuring the fee distribution could be very beneficial. However, there is likely to be political controversy and inertia based on years of operating in a particular way and to the benefit of certain groups.

6. **Implement one or two additional 'tech lounges'** in appropriate locations on campus to alleviate the use of computer labs for email and personal use, and to encourage the use of personally-owned computers on campus.
    A. Identify appropriate locations for tech lounges,
    B. Work with administration to identify funding,
    C. Work with Facilities and IT to implement the tech lounges.

    Cost/benefit: The benefit of additional tech lounges depends on the success of the first one which is just opening in the UC. The cost of the UC lab, complete with furniture, lighting, electrical work, wireless, email stations, conference rooms, and high resolution monitors was $145,000. It is expected that similar but smaller lounges could be outfitted for $50,000 - $100,000 each.
7. **Institute a governance group** comprising lab managers across campus to encourage consistency and cross-departmental planning and knowledge transfer. It might be useful to consider the integration of a lab governance group with fee governance groups, e.g. student computer fee or technology fee committees.

    Cost/benefit: the benefit of a collaborative lab management group is invaluable and the cost is the time it would take for such a group to meet on a regular basis. No additional resources are required.

8. **Continue to evaluate the status of virtual licenses** and peer university initiatives.

    Cost/benefit: This action has value and could be accomplished with current resources.

Year 2

1. **Re-evaluate student perception of computer lab services** on campus to determine if steps taken in year 1 had significant effect.
2. Depending on the status of virtual licensing, **reevaluate the feasibility of a cloud computer lab** and implement if possible. For this to be successful it is deemed necessary to provide at least 4 out of 5 of the applications that are most used by campus

Appendix A: Survey Questions and Results

Survey Questions

1. Select the software below that you use on UM lab computers: (select all applicable)
   - I don't use software on UM lab computers [if checked, ends survey]
   - Microsoft Office
   - SPSS
   - Adobe Creative Suite
   - Adobe Premier
   - ArcGIS
   - AutoCAD
   - Imagine
   - ENVI
   - MATLAB
   - Maple
   - Final Cut Pro
   - Other

   [Insert a text box here with a maximum 300 character limit]

2. Do you often need to access software during hours that the computer labs on campus are not open or when lab computers are not available?
   - Yes
   - No

3. What issues have you experienced accessing software for UM classes? (choose all that apply)
   - None – I am satisfied with access to software for classes
   - The computer lab is in use for classes
   - The computer lab is full
   - The computer lab is closed
   - The computer lab does not have the required software
   - The computer lab does not have adequate disability access
   - Other

   [Insert a text box here with a maximum 300 character limit]

4. Do you feel it is important to direct student technology funds towards providing 24/7 software access?
   - Very
   - Somewhat
   - A little
   - Not really

5. Do you own or have regular access to a computer outside of the UM computer labs?
   - Yes
   - No

6. Outside of the UM computer labs what type of internet connection do you use most regularly?
   - Dial-up
   - 3G
   - DSL/cable
   - Public wireless
   - No regular access

7. Which would be your preferred method of accessing the software 24/7?
   - Via an internet browser on a personal computer
   - Via purchase and download to a personal computer (assuming some UM subsidy)
   - In a computer lab on campus

8. Are there other software access issues that you want to comment on?

   [Insert a text box here with a maximum 300 character limit]

When completed….'Thank you for helping identify problems with software access at UM'

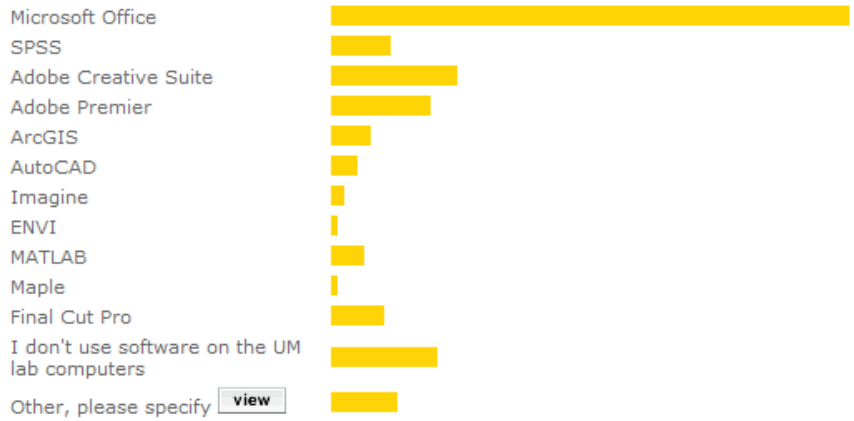
Survey Response (May, 2011)

Over the ten days that the survey was available, 1,019 students responded. In the findings shown below, the comments have been grouped into rough categories to help analyze the results.

Survey Heading: This survey will be used to assess access to software used for UM classes.

1. Select the software below that you use on UM lab computers: (select all applicable)
   - I don't use software on UM lab computers [if checked, ends survey]
   - Microsoft Office
   - SPSS
   - Adobe Creative Suite
   - Adobe Premier
   - ArcGIS
   - AutoCAD
   - Imagine
   - ENVI
   - MATLAB
   - Maple
   - Final Cut Pro
   - Other

Response



	Response Total	Response Percent
Microsoft Office	780	78%
SPSS	85	9%
Adobe Creative Suite	191	19%
Adobe Premier	146	15%
ArcGIS	63	6%
AutoCAD	43	4%
Imagine	20	2%
ENVI	13	1%
MATLAB	54	5%
Maple	14	1%
Final Cut Pro	84	8%
I don't use software on the UM lab computers	159	16%
Other, please specify view	104	10%
Total Respondents	995	
(skipped this question)	20	

Other software:

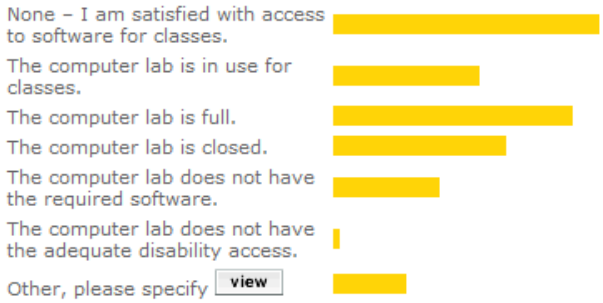
Software	# of Requests	Software	# of Requests
Digital Performer	12	Adobe Digital Editions	1
Visual Studio	11	Bias Peak	1
VectorWorks	8	Course Compass	1
Adobe Photoshop	7	Doulos SIL	1
Visual Basic	6	FM8	1
Peak Pro	5	FORDISC	1
Google Earth	4	Garage Band	1
Open Office	4	Gimp	1
Peak	4	Graphic Analysis	1
Adobe Acrobat	3	Idrisi	1
Avid Pro Tools	3	JAVA	1
Eclipse	3	KOMPLETE	1
Geo-Sketchpad	3	LaTeX	1
MS Access	3	Logic	1
Native Instruments Suite	3	Massive	1
TransCAD	3	MS Office	1
Adobe After Effects	2	NetBeans 7.0	1
Audacity	2	NVIVO	1
CSound	2	Oasis Montaj	1
iMovie	2	Paint	1
Lightwright	2	Peak	1
Max/MSP	2	Populus	1
MS Project	2	Power Architect	1
MS Word	2	Safari	1
Peak Audio	2	SnagIt	1
Praat	2	Stata	1
Surfer	2	Stereonet	1
Toast	2	Supercollider	1
Absynth kontakt	1	Transportation and logistics software	1
Active X	1	VLC	1

2. Do you often need to access software during hours that the computer labs on campus are not open or when lab computers are not available?
   - Yes
   - No

	Response Total	Response Percent
Yes	397	44%
No	504	56%
Total Respondents	901	
(skipped this question)	114	

3. What issues have you experienced accessing software for UM classes? (choose all that apply)
   - None – I am satisfied with access to software for classes
   - The computer lab is in use for classes
   - The computer lab is full
   - The computer lab is closed
   - The computer lab does not have the required software
   - The computer lab does not have adequate disability access
   - Other

   [Insert a text box here with a maximum 300 character limit]



	Response Total	Response Percent
None – I am satisfied with access to software for classes.	345	40%
The computer lab is in use for classes.	190	22%
The computer lab is full.	310	36%
The computer lab is closed.	224	26%
The computer lab does not have the required software.	144	16%
The computer lab does not have the adequate disability access.	11	1%
Other, please specify	94	11%
Total Respondents	873	
(skipped this question)	142	

See Q8 for additional issues that were mentioned

4. Do you feel it is important to direct student technology funds towards providing 24/7 software access?
   - Very
   - Somewhat
   - A little
   - Not really

	Response Total	Response Percent
Strongly Agree	284	32%
Agree	314	35%
Neutral	200	22%
Disagree	71	8%
Strongly Disagree	26	3%
Total Respondents	**895**	
(skipped this question)	120	

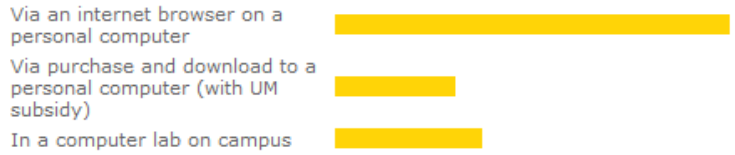
5. Do you own or have regular access to a computer outside of the UM computer labs?
   - Yes
   - No

	Response Total	Response Percent
Yes	824	92%
No	70	8%
Total Respondents	**894**	
(skipped this question)	121	

6. Outside of the UM computer labs what type of internet connection do you use most regularly?
   - Dial-up
   - 3G
   - DSL/cable
   - Public wireless
   - No regular access

	Response Total	Response Percent
Dial-Up	12	1%
3G	58	7%
DSL/Cable	609	68%
Public Wireless	164	18%
No Regular Access	48	5%
Total Respondents	**891**	
(skipped this question)	124	

7. Which would be your preferred method of accessing the software 24/7?
   - Via an internet browser on a personal computer
   - Via purchase and download to a personal computer (assuming some UM subsidy)
   - In a computer lab on campus



	Response Total	Response Percent
Via an internet browser on a personal computer	528	59%
Via purchase and download to a personal computer (with UM subsidy)	163	18%
In a computer lab on campus	198	22%
Total Respondents	**889**	
(skipped this question)	126	

8. Are there other software access issues that you want to comment on? (includes comments on Q3: lab issues)

Hardware
• Main labs need faster computers.
• I can't speak for people who make more use of the software available on these computers, but what would benefit me the most as a browser/microsoft office user would be to focus funds on upgrading the lab computer hardware.
• Mac vs PC
• I often have issues finding a reliable computer in the library. Wether it is a keyboard or a mouse or a nonfunctioning monitor I seem to encounter it there.
• Why does the university use apple computers and software? A majority of people do not have MACs and can't afford them. There are a number of programs that are MAC only this means a student has to do their work in the lab when it is available. PCs have all the software that MACs do plus unlimited sources of other programs. I am sure that almost 100% of students have or have access to PCs. Apple is also closed source where the PC has access to unlimited software that is usually considerably more affordable than MAC software.
• move to a centralized cluster, roll-out thin clients, stop wasting resources on individual lab machines and invest in a future proof thin-client/server infrastructure.
• The equipment in the computer labs at the college of technology seems to be substandard/outdated compared to the labs at the mountain campus. I have experienced these computers taking 10 minutes to log in and taking another 10 minutes to access simple power point or word documents through blackboard. The computers at the college of technology are heavily used, and for the amount of students at that campus, there are an inadequate number.
• Scanners on campus are inadequate.
• GPHY needs better computers we are on out dated hard and soft ware
• Computers are too slow, the hardware isn't sufficient for Windows 7. We need newer computers.
• Yes--more MACS!

- have you ever been stuck on the dan ryan expressway?

Hardware

- Mac works better then PC.
- the computers in the labs are too outdated to run the required software. The software has been installed without the regards to hardware requirements
- The computers are too slow. If you want to look something up quickly it is impossible.
- Servers go down...
- slow computers in the NAC
- The computers in the NAS building are extremely slow. Also, while booting Internet Explorer, there is almost always (in the UC lab) an intro screen that has to load because, I'm assuming, the program thinks that it's being opened for the first time. Takes forever, especially troubling when I'm in a hurry. Seems like an easy fix.
- The computers are not as fast as I am used to (I have a very good laptop).
- computers in HS114 are slow.
- systems are so slow that I can drive all the way home and get documents faster.
- The computers in my lab (CSD department) are ghetto old. They are so slow, and printing is a pain because the swipe machine is also old and finicky.
- The computers are so incredibly slow!
- The hardware can not keep up with the software.
- slow slow slow
- needs more macs
- Printers not installed. Computers slow.
- The macs in the new computer lab in IMB are a joke. They don't even have number pads on the keyboard. Who would buy these for science majors?
- there are not enough macs, and that is what i prefer
- The actual student lab that you have to sign in to at the COT. The computers are all really slow and desperately need upgrading.
- Slow systems!
- Computer Science department computer lab contains many computers which are not functioning properly to the extent that they cannot be used. Some of the computers lack basic equipment like a mouse and/or keyboard. There are not enough chairs for each computer, and most of the chairs are broken; they have broken backs or no backs at all, and are fairly dirty.
- Takes a long time to load
- The computer lab does not have adequate performance capabilities most of it's computers.
- In the linguistics lab, Adobe Creative Suite has a tendency to shut down, it also needs an update
- Computers cannot handle the programs and it is almost impossible to work efficiently.
- Computers in the drafting room too slow for rendering
- The computers in the vectorworks cad lab are very old and slow.

Internet Speed

- I think the use of Citrix to access applications is great so that I don't have to install it on my local machine, but with a bad connection or a slow computer, running something virtualized just gives migraines...
- no, my biggest complaint is slow internet
- slow internet data download speeds
- The internet speed is frequently super SLOW
- The internet is slow
- SLOW INTERNET--at least with the pcs and internet explorer browser

Lab Access

- too many classes. Too few computers!
- longer library hours would be awesome but that has nothing do with software
- Computer lab hours are not feasible for students with jobs outside the University.
- The library and other computer labs are always much too full. It would be nice to have more computer access on campus with longer hours.
- Most issues that other people have had that I know are that they go to print and the lab is closed. Maybe having clearly posted hours and in several locations will help them plan a bit. I don't think 24/7 use will be necessary because most people who need it late night are people who don't plan and they need to learn to make a good use of their time!
- need more room for the computer labs for people to use the computer all time during the day....!!!!
- I only use DHC computer lab. Only one computer allows gmail in normal format and it's frustrating to have to wait for it. Everyone wants that computer. Why not install ActiveX on the rest?!!
- Expanded lab hours and having Final Cut Pro and CS5 Master collection on more macs.
- Taking a class with limited lab time, to use software. Taking a web design class and trying to finish projects outside of class, very few people have the money to purchase an Adobe creative suite even at student discounted rates.
- This is technically a separate issue, but THE MANSFIELD LIBRARY NEEDS TO BE OPEN 24 HRS ON WEEK DAYS! It is seriously lacking as a resource to students because of its hours. Technology access would not be an issue if the library computer lab was open all week.
- 24/7 availability is the MOST important thing that UM computer labs don't have. Attempting to juggle my work schedule (which can only be done during the day) and classes with lab time, often means I have to do homework late at night and I don't have as nice of a set up at home or as fast of an internet connection so I am not as efficient as I would be if I could be in the lab past 10 pm (the library is missing the software I need to do most of my homework).
- no need for lab 24/7. from like 6:00pm to 12:00am would be nice.

Lab Access
• You all are doing a good job, in a quickly changing environment, to keep up with necessary changes. Probably, more computer stations, I imagine, would be the next best thing? How about a whole floor of a library dedicated to computer stations (I like the zig-zag row - perhaps some stations with dual monitors?) Thanks again!
• In particular, I would appreciate having a computer lab or other study area available for students later in the evening than 1AM (when the library closes). I have my own computer but prefer to get out of my dorm room where there are too many distractions. Thanks for your time!
• Sometimes my work schedule doesn't coincide with the hours of the lab
• Just not enough computers. My laptop broke halfway through the semester and it totally fucked me in the ass!
• Biggest beef by faaaaaar is stupid library hours (ie can't access computers when needed). This is a UNIVERSITY!!! Every state school that I've visited (save here) is OPEN 24-7---
• could we at least have access the week before and week of finals-- 24-7??? This is recockulous!!!
• Programs needed are only available in the SOBA labs which are closed Friday nights and Sat.
• Lab is only open 8-5 so finishing last minute homework can be a pain if the lab is closed
• The main computer lab I use is in the music building, there is only one workstation and 40 students. Its not hard to understand that it is hard to get weekly projects done, with that. Then the one computer in the workstation is overheating or whatever and not working properly, well with all the activity it recieves, it just may need to be better. or build more workstations, if you are going to enroll this many students to the classes that use them.
• Hours often conflict with schedule
Printing
• i LOVE the labs around campus and the friendly help at IT i think it is a very important resource at um and computer access is important because not everyone has one at home. i dont really like griz printing my i understand why it works so well. i prefer cash
• Yes, when I am able to access the UM lab, and able to work on the computer.....it is difficult to print my work due to the fact the there is usually a class room full of students printing their work...so are printouts will be all interwoven together, where we have to sort the pages to get to ours. Need more printers. There is also be additional computer set aside for students needing the computer outside of the classes. The computer technician need to be more staffed to accommodate all the questions that non-tratidional students may have.
• Unable to print from MS office applications is very common problem.
• Printers don't always work like they should.
• The printers don't always work
• crappy printing
• Printing in labs that only take UMoney has become a problem for me.
• you have to use your griz card to pay for printing in the computer lab in the LA building
• The printing compatibility with the library is very frustrating. I often have to print psychology studies and have real difficulty on a regular basis.

- The only lab that accepts cash/coin for print jobs is the library...VERY frustrating

Software
• There is an issue with no having access if you are not currently in a class that uses the lab. Even after talking with several professors I was not allowed in the class to use SPSS. Why cant we put this program on the computers in the library
• Want adobe and photoshop, too.
• not up to date software
• Have own software access at home - would like the same free access on campus -
• Sometimes basic microsoft programs are not on lab computers, such as a simple image editing program like MS paint. It is frustrating when something so fundamental is missing.
• If you are thinking about giving out free software to UM students, then this is stupid.
• You need to install a better browser on all campus computers. Internet Explorer 8 is awful.
• It would be great to have a MSDN Access for students to have the latest version of the Windows Operating System.
• Student licensing of software required by classes for installing on my personal computer.
• yes. why does the microsoft office/adobe suite need to be installed on all campus computers. I realize this tools exist as the status quo...but damn. That is a ton of money
• Editing software (photoshop, ArcGIS, etc.) are not available in the library.
• It would be really nice if your software would be compatible with students home PC's. Having to save one file on my home pc then to use it at the campus would not work sometimes. I'm able to bypass this cause it's caused me a problem and learned to fix this on my own. I was only told to go buy software that I could not afford. My suggestion is to use all the same software release dates and if the student does not have it home? Then supply the student for what the class requires.
• The school should try to get students more of a discount through major computer dealers. A home computer greatly adds to a students potential, rather than being restricted to certain times. Whats with the football team how much money do those fellas need back in my day we figured out new cheap way's to pump Iron, and we were better men for it. The regular guy needs more people behind him pushing him, help.
• Like I mentioned before I use a MAC Book pro and it has been very difficult, being my first year, figuring out how to submit papers and it has not always been compatible with assignments or things out professors have asked us to run. I think it would be beneficial if the professors were more informed about the different types of software. I actually had one tell me "I don't know anything about MAC so you will have to figure it out somewhere else". I had an assignment due that very next day in her class and it was a weekend. Thank goodness I had another professor that I was able to get a hold of.
• Would prefer to get software on personal cpu but software costs are too high.
• Endnote is required for some classes, but cannot be used on most UM computers.
• data analysis on excel would not add-on to several computers in the health sciences building. data analysis is critical for ecology students doing lab in this building.

Software
• Maybe consider having video and photo editing software on more computers than just the 2 on the main floor of the lobby. Those projects can take a few hours sometimes and having a few more computers wouldn't hurt.
• Please install photoshop and FL studio if all possible
• Allowing students and teachers to easily convert MacBook products to Widows products
• Consistency of software versions among labs.
• I would like it if I didn't have to buy photoshop, It's still too expensive to use for one semester but is not available on enough computers. It's a huge pain to have
• We shouldnt have to pay for the pearsons MyITLab Book and then have to pay for all the microsoft 2010 programs on our personal computer.
• The inability to install fonts on the computers in the Library that have graphics programs installed causes me some major difficulty.
• bring down cost of software and computer materials in the u of m store and cot book store
• Did not ask if we have access to the software outside of school facilities. Often there are convenient places that will also allow you to use their software for a very cheap price or for free. You just have to look around. Not to mention friends that may let you have access as well.
• MultiSim would be nice. Access to more plug ins for laptop use in the cafeteria at the COT.
• I am very happy with the free access to many Microsoft programs available through the Computer Science department. The system administrator sets up an account for us with Microsoft, and we are then able to log into a Microsoft site and download from a fairly large selection of products. It would be very useful to have subsidized access to programs like Adobe Photoshop and Final Cut too, though.
• it would be cool if the main campus had autocad on all of the computers
• not all the computers have had access without to some of the software programs like MyItLab or MyMathLab without getting an aide to enter passwords on the computers. I think all computers on campus should be compatible with the instructor's programs.
• More software choices available with bigger discounts, please.
• Most current versions not available.
• Outlook is a terrible program. Microsoft products have security issues.
• Adobe can help!
• Outdated software.
• Out of date SPSS
• Some library computers do not have pdf readers
• New York Times 20-article limits: does UM have more access?
• I usually use either the GBB computer lab or Mansfield Library computers. I wish all the computers in these places had Adobe Acrobat on them.

Software

- Programming in any language is nearly impossible anywhere on campus except the Computer Science Dept. lab in the Social Science Building or one lab in the Business School. As a result, most of the labs on campus are all but useless for Computer Science or even MIS majors, and they MUST do most work on their personal machines, having little or no access to the programming tools needed to complete coursework, most of which are free and open source, or at least available to students free of charge.
- Downloading student versions of software is a pain
- Windows XP command line class is not compatible with my Windows 7 OS that I received from MSDN. Made it really hard traveling back and forth to complete homework. Only one lab had the software I needed for homework in one of my classes. Being in the computer program doesn't work so well with the general computer labs. HB04 is the only nice computer lab.
- Visual Studio 2008 works but Visual Studio 2010 is starting to be used more in the textbooks required for some classes.
- When taking certain classes like CAPP 154, part of the requirement for the class is to do a program called Irwin keyboarding, which is alot of lessons, with that being said, once you start to do the program at the beginning of the semester, the computer that you used is the one you have to use for the entire course for the keyboarding assignments. So if you go in anytime other than class, someone may be on the computer that you need to use, which you can ask them if you may use that computer as its assigned to you for your assignments, they may move for you or not, it goes both ways. Other than that things in the labs are great!
- I'm not sure why both MS Office 2007 and 2010 are installed. It gets confusing when students use tools that are only used in 2010 and then Windows defaults to opening them in 2007.
- Sometimes there are people in the lab during class that sit in my spot, which has the installed software on it and my save labs. Can be annoying, but wasn't a huge deal.
- Not all labs are consistent with versions of software. McGill hall labs have Final Cut Pro and the Journalism and Fine Arts buildings have Final Cut Express. So I can only work on my projects in McGill hall, even though there are other less used labs around campus.
- Some of the computer labs do not have the same software and or the printers are not compatable with the software
- I only use DHC computer lab. Only one computer allows gmail in normal format and it's frustrating to have to wait for it. Everyone wants that computer. Why not install ActiveX on the rest?!!
- I wish the UM supported MultiSim in my EET 121 Electronics lab, it would have given me and my class mates one more opportunity to retain current flow through different circuits.
- Some computers in my lab did not have the needed version of Microsoft Office 2010
- Licensing issues arise, it is frustrating to not have the same suite of applications avilable throughout the J-school.

Support
• needs to be more technical assistance for complicated programs
• There should be a website which tells students what software each computer lab has so they don't waste time walking to different computer labs looking for the right software.
• It would be great at all the labs (and maybe at a UM website for after hours) if there was someone available to help with commonly used software problems. Not just connection problems, and running problems, but how to do things in like Office Word or power point, or using the email, etc/
• Areas with specific software capabilities are not advertised.
• User restrictions on library computers (for instance, NOT BEING ABLE TO RIGHT CLICK ON FILES OR ICONS) are a gigantic pain in the ass and hinder our ability to use the machines.
• Yes. Some computers require software updates but user does not have access to update. In fact, I have mentioned to staff several times over the last couple months that comp gbb209-42 needs java and adobe flash updates, but it still hasn't been done. Need a process for automatic updates or updating regularly. Thanks
• We need some way of finding out about computer viruses before we get hit with one. I know it's a daunting task, but the past year @ the end about final time, I've needed to have my computer repaired due to viruses. even with spy, virtual wear in place.
• If all computers in the future use windows 7 that would be great.
• I think there should be document conversion instructions (tutorials) to help students and professors properly manipulate (edit) one another’s work.
• Should make it easier for people to figure out how to use the university WiFi.
• The CS department didn't renew its MATLAB license.
• I work from home and my MAC sometimes complicated things... There could be a bit more information available for those who have different software than the typical student.
• Lack of tech assistance with specific programs.
• Sometimes the login does not work correctly.
• Maintaining preferences across all computers in a lab, no matter what workstation
• Blackboard has frozen while I was taking an important test. I feel like it still has some kinks that need to be worked out.
• when dumb blackboard does work.
• microsoft office will sometimes lose the things that you saved. When I saved my paper i looked for it and i couldn’t find it in any parts of the computer.
• I use blackboard, umconnect off-campus. Very good, but occasionally goes down
• Userinterface too penatrable. Viruses. Not cool.

Wireless

- The only complaint is that wireless should be available everywhere on campus. Sometimes I don't have time to go to a computer lab and there aren't labs everywhere. Wireless internet service would be very valuable. It should be available EVERYWHERE on campus and I think it should be free and open to anyone to use.
- It is very difficult to connect to the wireless on campus each semester. It would be nice if we could have an easy way to do that from our own computers instead of seeking out someone who knows and trying to reach them during hours.
- More WIFI areas.
- Wifi is often down.
- wifi in chemistry building and ISB please! need that every day and it's spotty at best!
- Campus could use more WIFI area

General

- I am an online student
- I primarily use the SS labs. The SS building is locked on weekends and at night.
- I hate that Bb is closed sometimes.
- Moodle is extremely frustrating and hard to work with.
- I think that there need be streamlined connectedness between home and school. more access or knowledge to sky drive, and accessing your computer and software preferences no matter what workstation or lab you are working in on campus.
- security issues
- blackboard and onestop fail to work on a regular basis
- No. I am a university employee and can access most software i need either from work computer or pc at home. Despite this situation, i think a virtual lab with accessible software by entering in net id and pw would be an outstanding service for UM students.
- Sometimes logging into a computer running windows the startup scripts will "load my user preferences" for quite a long time. I don't log on to a school computer so that it can save my user preferences, I just need to check something on the internet. So it dosent make a whole lot of sense to wait 10 minutes for a computer to set up my user information for 2 minutes of actual computer usage. The campus mac's do not have this problem. Also, blackboard and moodle both seem pretty slow and unreliable, as well as difficult to navigate.
- Moodle is often very confusing
- Providing a sound recording studio on campus... WE NEEED ONE, especally for Media Arts Students.
- With the last question asked #7, you also need to understand that not all students have a computer of handling much more than what they already have on it. So, purchasing or using UM software on our personal computers may be a "no go", unless UM wants to help the students get computers that are capable of handling it.

Wireless

- In conjunction however, ethical training and standards of research must be taught. No plajerism, undergrads, Wikipedia is middle school sh*t
- I think the having most of my class work online is not a good thing
- YOUR SOFTWARE IS DUMB
- Less software access related, but since this survey is technology related I think the faculty in any department needs to be adequately trained in the technology they are forced to use for their classes. Example: A 100-level, lecture-based course that is split between class time and Blackboard assignments. Most of the time, the professor doesn't know how to correctly post and organize the Blackboard assignments, which is obviously an issue for the rest fo us that are required to complete the assignments. At this point in civilization, there is no excuse for technological illiteracy.
- With adequate internet access and the rise in personal computer ownership it is easy to do work at home, because of this I think access to software off campus would be a great asset.
- If we could have some remote server storage space where we could save our course documents/files and access them anywhere.
- Why is OneStop and /or Cyberbear sometime completely inaccessible? Why would Blackboard only accept files that were .doc files, and not files files from Open Office? (.odt)
- Cloud-based storage for all students? Free iPads?
- trouble with quizes on blackboard
- Even for those that own computers off campus a computer lab is a valuable resource. It allows students to relocate themselves to quiet areas with fewer distractions than our homes or coffee shops.
- There are no other software accues issues that have not been discussed, this survey was very thorough. Thank you for taking the time to conduct the survey and read our responses. As a dedicated college student, it is nice to know that the campus cares as much as we do with regards to our education and improving our academcic excellence. Have a great summer!
- We should be leading like Colorado State rather than falling behind: http://www.youtube.com/watch?v=OLgBdFOQwMg
- Please, don't use a cloud solution. You should do some sort of open license solution where I could download the applications for the semester or something. EVERYTHING that we do over the cloud IS sooo slow, and ugly. I would like to have an executable form of each program.

General

- nope it would just be nice if you could be able to do the Irwin keyboarding on yor own computer at home also then there would be no problems getting it done..Thank You
- Not with software, but I am extremely dissatisfied with the consideration of others and cell phone use in the labs. I think use could be more strongly discouraged than currently is. Coming to campus is extremely helpful if home environment is too distracting, and UM does not implement and facilitate a library environment that should be treated as a sacred, quiet, study space. I hope more people are concerned about this detrimental loss in students consideration for others.

- I haven't been in a lab yet.

General

- Do not know where computer lab is located.
- One of my flash drives contracted a virus from use of a computer in a "secure" lab. I know I didn't cause the issue because I decoded the encryption and the virus was downloaded on 1/31/11 and I didn't start using the unit until February. I was disappointed because I trusted that in a secure computer lab that kind of internet behavior wouldn't cause a problem like that, Not happy.
- I have never used the computer lab on campus.
- Do not use campus computer labs
- I do not access the labs.
- I don't use the computer labs
- I don't use the computer lab
- HOMELESS people using campus computer labs for personal use when students need them for coursework. Please require campus netid log in or make people show a valid griz card to use campus resources. STUDENTS and donors pay for these resources to be available for STUDENTS and members of the University, not as a public service for homeless people.
- The computers in the Library that have the Illustrator, etc. installed are not connected to the internet. While I understand that this results in those particular computers being less in demand by the general public, it makes doing any serious design very impractical.
- I was an online student so I never used on campus computers
- I tried to order software from the UM bookstore and never received a reply.
- do not us UM computer labs
- I don't use them, I have my laptop
- I use my own computer at home & I use Google Chrome 10.4 which can cause some errors. Mostly with the timer on Um Connect and the first page of My labs plus
- I use the computer lab in the Chem building and their are students WHO are EXTREMELY LOUD, but the computer lab workers never want to yell at them so most of us students have to. Its so annoying. I feel there should be more strict rules. LIKE NO PHONES, OR TALKING. AND THAT GOES FOR PEOPLE WHO WORK THERE TOO
- I don't use the computer lab

No Issues

- no
- Not that I can think of
- can't think of any
- not that i can think of
- None thus far
- Nope.
- Thanks to all the wonderful IT staff!

- nope

No Issues
• no
• none thank you
• none
• nothing
• No we're good
• Not that I can think of
• None that are apparent to me.
• nope
• no
• None that I can think of at the moment.
• no
• no
• no
• no
• no
• no
• not for me. but I am a writer.
• no
• No everything is fine.
• no
• no
• no
• no
• no
• not that I am aware of.
• no
• No, maybe questions as to why people prefer to use on-campus computers, for my self it is
• no
• no
• none
• no
• no
• none

- no
- no

No Issues

- Nope.
- no
- no
- not to my knowledge.
- Nope-a-roo
- none
- none
- No, every thing is great from my perspective.
- Nope.
- no
- Nope. I use a limited amount of software-I'm not computer savvy.
- none that i can think of
- Not that I can think of I think I addressed most of the issues i have
- No, I am satisfied with the current computer lab system
- Everything else is just fine
- no

Appendix B: Availability of Virtual Licenses

Software	Company	Licensing Responses	# of Requests
Max/MSP	Cycling '74	Key Server Licensing Option - Sassafras keyserver. Each license is intended to be used on 1 machine at a time.	2
Geo-Sketchpad	KCP Technologies	David Devlin ext. 190 - Between $69.95 and $15.00 per license when buying 100 licenses. Willing to work on an out of the box license pricing scheme for virtual desktops.	3
Logic	Apple	Unwilling to license virtual desktops.	1
Avid Pro Tools	AVID	Unwilling to license virtual desktops.	3
Peak Pro	BIAS	Unwilling to license virtual desktops.	5
Peak	BIAS	Unwilling to license virtual desktops.	4
Peak Audio	BIAS	Unwilling to license virtual desktops.	2
Bias Peak	BIAS	Unwilling to license virtual desktops.	1
Peak	BIAS	Unwilling to license virtual desktops.	1
TransCAD	Caliper	Discounted Academic Licenses - Single = $2000, Single Floating = $3000, 4 or or more = $ 1500 each, Network Dongle = Any number of licenses not sure how much it will cost until we tell them what we need it for.	3
Transportation and logistics software	Caliper	Discounted Academic Licenses - Single = $2000, Single Floating = $3000, 4 or or more = $ 1500 each, Network Dongle = Any number of licenses not sure how much it will cost until we tell them what we need it for.	1
isi	Clark Labs	Unwilling to license virtual desktops.	1
Oasis Montaj	Geosoft	Unwilling to license virtual desktops.	1
Surfer	Golden Software	Unwilling to license virtual desktops.	2
SPSS	IBM	Purchase a "virtual license in addition to campus license.	85
Massive	Massive Soft	Unwilling to license virtual desktops.	1
Digital Performer	MOTU	Unwilling to license virtual desktops.	12
Absynth kontakt	Native Instruments	Unwilling to license virtual desktops.	1
FM8	Native Instruments	Unwilling to license virtual desktops.	1

Software	Company	Licensing Responses	# of Requests
Native Instruments Suite	Native Instruments	Unwilling to license virtual desktops.	3
KOMPLETE	Native Instruments	Unwilling to license virtual desktops.	1
VectorWorks	Nemetschek	Unwilling to license virtual desktops.	8
NVIVO	QSR International	Unwilling to license virtual desktops.	1
Toast	Roxio	Will not work properly in virtual environment. Unable to license virtual desktops.	2
Power Architect	SQLPOWER Software	Unwilling to license virtual desktops.	1
Stata	STATA	Unwilling to license virtual desktops.	1
SnagIt	TechSmith	As long as you can limit the users using the software for the licenses you have you will be in accordance to the contract even in a virtual environment. = Academic = $22.95 per license, Lowest Academic Volume License = 5 licenses = $28.95 total.	1
Graphic Analysis	Vernier	All we need is one license and any number of people can use it at the same time in a virtual environment. 1 license = $80.00	1
FORDISC	The U of Tennessee	Will not work properly in virtual environment. Unable to license virtual desktops.	1

Appendix C: Sample of the communication and diversity of computer labs on campus

College of Forestry and Conservation:

http://www.cfc.umt.edu/labs/

College of Technology:

Logon steps: http://www.cte.umt.edu/academiccomputing/logon_procedures.aspx

Software (2009) http://www.cte.umt.edu/academiccomputing/labsoftware.aspx

School of Business:

http://www.cte.umt.edu/academiccomputing/labsoftware.aspx

Department of Mathematical Science:

Lab Information http://www.math.umt.edu/sysinfo_files/page0001.htm

Software list http://www.math.umt.edu/sysinfo_files/page0002.htm

Mansfield Library: http://www.lib.umt.edu/

home page tells the location within the building of available computers as well as laptops available to borrow for building use.

Central IT:

General Labs: http://umt.edu/it/computerlabs/labhours.php

Assistive Technology (AT)

http://life.umt.edu/dss/Current%20Students/Assistive%20Technology.php