ARE STUDENT LABS REACHING THE POINT OF NO RETURN: A DECISION TIME

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ABSTRACT
Based on observation of the professors, in the past, universities across the country have provided computer labs for their students to use while on campus. Additionally, many departments within the university have provided their group of students with departmental computer labs or resource centers. Many institutions are carefully evaluating the always increasing costs of furnishing and maintaining student labs versus the benefits they provide to the student population. One of the reasons for the close scrutiny is the flexibility now provided by the increased use of laptops by the student population. Many universities have implemented, in some of their programs, the mandatory acquisition of laptops by the students and provide them the flexibility of on campus wireless internet connection. The systems in place allow students to keep track of classes and an open social interaction. Students can find topic materials, manage assigned projects or homework, communicate with instructors and peers, take exams, and manage their grades, all within a unique social environment. The purpose of this paper is to determine the feasibility of providing these departmental resource centers/computers labs, as well as to determine ways that a department can improve these labs to better serve the needs of their students.

INTRODUCTION AND LITERATURE REVIEW
According to McMahon, et al, (1999), students have certain expectations (and barriers) to using a university computer lab. These expectations are 1) need for training to increase confidence, 2) need for support by staff working in the center, 3) need for adequate information about the facilities and their location, 4) need for adequate access to the computers, 5) need for adequate times for usage.

When it comes to training a student who is adequately trained in computer usage, they will have less anxiety and an increased confidence level higher than one who is not (e.g. Colley et., 1994; Gressard & Loyd, 1986; Torkzadeh & Koufteros; 1994). In his research, McMahon, et al, (1999) determined that the focus groups questioned found that the most inhibiting factor to computer usage was the lack of training by the university they attended. In the same study, a first year student indicated "I would feel intimidated about using computers in university where there are ten or more computers in one room and the others users are competent."   However, students indicated that they would love to be "computer literate", but they currently do not have the time to put into learning all the aspects of the computer.

The second most inhibiting factor to computer usage according to McMahon, et al, (1999) was lack of help and support from staff. Staff to the contrary indicated that they were "…not really here to teach computing" and that it was "out of the question for someone like me to teach them". This really demonstrates the limitations and concerns some universities have when hiring student support workers as lab assistants. The issues here could influence decisions to hire a student worker, with a background or major in computer science, as opposed to hiring a business student to provide student assistant opportunities within the school of business. The trade off in this case is one of knowledge based (by selecting a CIS major), versus support based for students in the business area. In any case, specific responsibilities should be in place for those who serve the system as assistants providing ample opportunities for flexibility in scheduling and functions.

Another inhibiting factor to computer usage in the first year of a student's school experience is the lack of information as to where the facilities are located and how to use the computer lab. One first year student even commented that "My first year is almost over and I have no idea how to even find out about using or even finding a computer in the university." (McMahon, et al, 1999). This emphasizes the relevance of information sharing and mentoring functions so essential for the adaptation period required by all students but most importantly the newcomers (the freshman class).

Accessibility becomes the next important element. Students in the study of McMahon, et al, (1999), indicated a frustration at having limited access to computers, especially during peak times of the day. This frustration would increase if course work deadlines were approaching. Students suggested extended hours for the labs during certain times in the semester, as well as a need for more computers.

Access definitely coincides with the time factor. As indicated above, more time is recommended for students needing computers during peak times of the semester. Scheduling procedures must be sensitive to this issue of time constraints and must consider demand and availability to provide strong support for the student population at times when bottlenecks could interfere with the proper functioning of the facility (McMahon, et. Al, 1999).

With these limitations in mind Agyei-Mensah, et al, (2006) notes that rapidly changing technology is also causing pressure on educational institutions to offer increased training in computer usage. They say that "Students coming out of these programs should have some competencies in the setup configuration, and use of the equipment in the field. Shrinking budgets in schools and colleges have been a limiting factor affecting institutions' ability to keep up with equipping their labs to reflect industry standards." Therefore, the purpose of this study was to examine a business department's resource center/computer lab at a small, regional public institution with an analysis of determining the feasibility of providing these departmental resource centers/computers labs. A secondary purpose of the paper is to determine ways that a department can improve these labs to better serve the needs of their students.

METHODOLOGY
The population of interest was represented by business students from a small public university in a southeastern state. A convenience sample of twelve business courses was selected. From a captive population of 232 students, 169 questionnaires were collected, six of which were rejected for lack of completion or other concerns. This provided an effective response rate of 70.2%. Students were properly informed about the purpose of the study, and the voluntary nature of their participation. Proper research procedures were applied to assure the students' anonymity, to maintain the privacy of the information, and to avoid duplications in participation. Classificatory questions were used to be able to evaluate potential differences between the participants.

FINDINGS OF THE STUDY
Table I shows the characteristics of the students who completed the survey. Of the students surveyed, 47% were male, and 53% were female. There were 3% freshmen surveyed, 12% were sophomores; 32% were juniors; and 53% were seniors. Of the business students surveyed, 21% had an accounting emphasis; 6% had an economics/finance emphasis; 28% health care management emphasis; 40% management/marketing emphasis; and 5% had other majors. The majority of the students surveyed, 75%, live off campus.

Table 1
Sample Characteristics

Description	Gender	Classification	Concentration	Residency
Male	47%			
Female	53%			
Freshman		3%		
Sophomore		12%		
Junior		32%		
Senior		53%		
Accounting			21%	
Economics/Finance			6%	
Health Care Mgmt.			28%	
Management/Marketing			40%	
Other			5%	
On Campus				25%
Off Campus				75%

Table II shows the number of times students used the resource center during the past the semester. Seventy four percent of the students used the resource center from one to four times during the past semester. Seventeen percent of the students used the resource center more than 6 times during the semester. These percentages indicate that students still depend heavily on the resource center despite most owning their own personal laptop.

Table II
Used Past Semester

> 6 times	17%
5-6 times week	8%
2-4 times week	38%
Once a week	36%
Not at all	1%

The students were asked how frequently they used the resource center during certain times of the day and week. The results of their responses are presented in Table III. Most of student usage is in the mornings at 54%, and afternoons at 52% during the weekdays. Very few students use the resource center during the weekend.

Table III
Time of Use

Description	Frequently	Non-Frequently	Not at All
Weekdays	69%	27%	5%
Weekends	8%	10%	82%
Mornings	54%	30%	16%
Afternoons	52%	33%	15%
Evenings	22%	31%	47%
All Day	26%	32%	42%

Table IV shows the percentage of time spent doing certain activities in the resource center. Seventy two percent of the students frequently do course work in the resource center. After course work follows internet usage with 66 percent, e-mail with 64%, research projects with 59%, and class scheduling with 48 %. Twenty six percent of the students use the resource center frequently for recreational use.

Table IV
Activities

Description	Frequently	Non-Frequently	Not at All
Class Work	72%	24%	4%
Research	59%	26%	15%
E-Mail	64%	29%	7%
Internet	66%	26%	7%
Online Shopping	7%	23%	70%
Class Scheduling	48%	31%	21%
Recreation	26%	34%	40%

The survey included a section on the availability of computers and printers within the resource center. Table V presents the students responses to this section. Approximately 55% of the respondents either "agree" or "strongly agree" computers are always available. However, only 19% of the students feel that way about the availability of a printer. Sixty six percent of the students either "agree" or "strongly agree" they have to occasionally wait to print. This could be an issue that requires an evaluation of the efficiency of the resources allocated for printing in the lab.

Table V
Availability

Description	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Computers always available	21%	34%	26%	15%	4%
Occasionally available	8%	32%	26%	22%	12%
Always have to wait	3%	7%	25%	41%	24%
Can always print	5%	14%	32%	33%	16%
Occasionally wait to print	27%	39%	23%	9%	2%
Always wait to print	3%	6%	22%	39%	30%

Table VI indicates students use the resource center approximately the same from Monday through Thursday. However, the usage drops on Fridays. This can be explained by the fact that there are no afternoon Friday classes, and many of the students do not stay around after their morning classes.

Table VI
Day/Time of Usage

Description	Mornings	Afternoons	Not at All
Monday	41%	40%	
Tuesday	42%	41%	
Wednesday	41%	38%	
Thursday	43%	37%	
Friday	31%	16%	
Saturday			85%
Sunday			89%

Table VII shows the student responses regarding the quality and availability of software. The majority of the students surveyed believe that most software is up to date. However, 40% of the students believe some software they need is not in the Lab, and another 48% have problems finding software they need on a computer. The vast majority of students believe that all software is consistent on all computers.

Table VII
Software

Description	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Software is up to date	31%	52%			
Some software not in Lab		19%	33%	28%	12%
Usually can find software	28%	50%			
Software not on a computer	10%	20%	22%	36%	12%
Software same on all computers	46%	35%			

Table VIII shows the student's perception regarding the condition of the computers, software, printers, tables, and chairs. Student responses indicate they are satisfied with the condition of computer, software, and printers. Most of the students are satisfied with the condition of the tables and chairs; however, many students rated the tables and chairs as either "Fair" or "Poor."

Table VIII
Equipment

Description	Excellent	Good	Fair	Poor
Computers	28%	59%		
Software	24%	65%		
Printer(s)	24%	53%		
Tables	22%	48%	24%	6%
Chairs	21%	56%	18%	5%

Table IX presents the student responses regarding their perception of the lab assistants. Most of the students believe the lab assistants are friendly and courteous, and are able to answer questions. However,

many of the students did not have an opinion one way or the other. There were many "neutral" responses to the questions relating to the lab assistants. Most of the students believe lab assistants need to be business students. However, 42% of the students indicate that lab assistants need to be computer science majors.

Table IX
Lab Assistants

Description	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Friendly and Courteous	16%	40%	29%	8%	7%
Able to answer questions	12%	39%	34%	11%	4%
Knowledgeable of software	9%	30%	45%	10%	6%
Able to troubleshoot	10%	29%	45%	12%	4%
Knowledgeable of equipment	11%	33%	44%	8%	4%
Need to be business students	19%	34%	33%	7%	7%
Need to be computer science	12%	30%	43%	7%	8%

CONCLUSIONS & RECOMMENDATIONS
Considering the nature of the study and the implications applicable to the specific situation of a given business school or department, very little has been written on this subject matter. Much of the information on the evaluation of student labs (business resource center in this case) has been kept by the institutions, so the details about the efficient use of resources to serve the students' needs for an accessible, practical, and economical way to do their work in a lab environment have not been disclosed. It is not easy to address an issue that is heavily influenced by a myriad of factors and circumstances that go from the economic challenges to the incredibly fast technological developments, and from the need to balance the service needed by the student population with the ever growing budget limitations so real nowadays.   It is important to users of this information to consider that any evaluation of a lab environment in terms of feasibility and services relevant to the student needs has to focus on each particular school or department at a time and place unique to that case. Consequently no effort was made to generalize specific issues that affect a department or school at a small regional public institution. Instead emphasis is placed on a set of potential issues that should be considered before a decision is made to improve services or decide on a drastic measure to cut costs by closing some facilities.

The challenge becomes more difficult when continuous technological advances are facilitating easy access to information/communication resources. More and more schools are making laptop computers mandatory at many levels. The lower costs of the new laptops and their ability to tie with institutional systems that provide instant access to records, class materials, research libraries and many other amenities provided by this internet era have decision makers thinking about the usefulness of investments in lab environments in instances where a large percentage of students, in many cases, 100% own such devices. It seems like an inefficient duplication of resources. The powerful and flexible portability of the new generation of tablets will add another layer of complexity since these new devices can become very soon the replacement for laptops with functions and versatility never heard of today. So, are student labs getting closer and closer to the point of no return? That is the question we need to address.   Each administrator has to evaluate the unique perspective of their school environment. Each will have to address issues of sustainability, and yes, each will have to live with the consequences of their decision.

In a small way this study tries to share a perspective applicable to the school in question and by doing so opening the discussion of what will be the future of these business resource centers or student computer labs. The first factor to consider is usage. Is the student population making an effective use of business

resource centers? The results demonstrate that a high percentage of the students 74% use the lab up to four times a week, and an additional 25% use it five or more times a week. Administrator should consider whether this level of utilization is providing an important service to the students and deserves the support and investment.

If the previous issue is answered in a positive way, then the administrator can focus on determining what kind of activities are been supported. Are the activities in line of the proper utilization of business resource center? The findings show that 96% of the students use it for class related work including 72% of frequent users. Ninety three percent reported the use of e-mail including 62% of frequent users. The internet was used by 92% including 66% of frequent users. For research projects or assignments the results reach 85% including 59% frequent users. These were followed by class scheduling with 48% frequent users, recreation with 26% frequent users, and online shopping with 7% frequent users.

Once the administrator evaluates the previous information, if the levels indicate the lab resources are properly used, then the question turns to two areas, software and equipment availability. Determination of the proper software is usually supported by centralized IT departments in conjunction with the administrator of the school or department. However, it is important to get feedback from the users as to the currency and efficiency of the programs in place. The results in this area show that students gave high marks to the categories of computers, printers, and software. Combining both the good and excellent categories, the numbers where 87%, 89%, and 77% respectively.

The final piece of the puzzle relates to student assistants. The most important aspects to consider are: What kind of knowledge and support can they offer? What are their responsibilities? What schedule will provide the best results? Depending on these issues a determination can be made as to whether the need is for an assistant majoring in CIS, or a bright business student with sufficient computer knowledge. This study by no means is intended to be a prescription but rather an opportunity for an open discussion on a subject that affects administrators, faculty, staff, and students in a university or college setting.

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