Evaluation of MyGateway Use FS 2003
Executive Summary

The following report details findings from a survey that collected data on student assessments of MyGateway in classes from Fall Semester 2003. The survey instrument is designed to collect data regarding the computing capability and resources available to students, the degree of use made of MyGateway in select classes, and the perceptions of students regarding the use of MyGateway in classes. We sampled ten per cent of the courses using MyGateway. High use classes were distinguished from low use classes based on the instructor’s use of the course site as well as student activity in the course site. We focused on the degree of use of MyGateway by classes to help us understand how students in classes that use it more compare to those in classes that use it less.

Highlights from the survey follow:

- Dial-up users experience a general problem with the slower connection speeds and, as a result, are more frustrated in working on courses that require any amount of Internet activity.

- Almost 69% of the students indicated they own a Pentium class or Macintosh personal computer. Only 10% of the students report not owning a personal computer.

- Sixty-nine percent (69%) of students access MyGateway primarily off campus.

- Fifty-one percent (51%) of students report some form of off-campus, broadband Internet access (DSL, cable modem, or work LAN).

- Students accessing MyGateway from on campus were statistically more likely (p < .05) to:
  - communicate with their instructor (Question 15)
  - actively participate in the course (Question 12)

- Off-campus students, especially those with dial-up connections, were more likely to agree with negative statements (Questions 20-23) and disagree with positive statements (Q24) concerning usability than on-campus students

- Students accessing MyGateway from on campus were statistically more likely (p < .05) to disagree with the statement:
  - “It takes more effort to complete a course that uses online resources like MyGateway” (Question 31)

- Students in classes with high use of MyGateway were more likely (p < .05) to:
  - Seek clarification when they did not understand something (Question 6)
  - review lecture notes for clarification (Question 7)
  - actively participate in the course (Question 10)
  - work on assignments with other students (Question 11)
  - complete assignments on time (Question 12)
  - access other online materials related to course content (Question 13)
  - spend more time studying for the course (Question 14)
  - refer to the course syllabus (Question 17)
• Students in classes with high use of MyGateway were statistically more likely (p < .05) to:
  o agree that they are very satisfied with the course (Question 29)
  o take another course at UMSL (Question 33) complete their degree at UMSL (Question 34)
  o agree that they were more able to seek clarification (Question 8)
  o receive instructor comments on assignments quickly (Question 9)
  o communicate with their instructor (Question 15)
  o think more about course topics (Question 19)
  o understand concepts and ideas in the course (Question 25)
  o think that MyGateway contributed to their learning (Question 27)

• Students in both high and low use classes were statistically likely (p < .05) to agree they would like to have MyGateway used in other courses.

• Students using dial-up connections are more likely than students using campus-based computing or broadband connections to indicate access and technical problems (Questions 9, 22, 28 and 31).

• Benefits to students in face-to-face, hybrid (mixture of class sessions and online activity), or online courses were similar to the previous year’s list. The top three were identical:
  o Access to grades
  o Communication
  o Convenience.

  Other benefits mentioned were access to announcements, syllabus and other class documents, a free email system and online quizzes.

• The most frequent response to a question about problems experienced was “No Problem” (N=608). Problems noted by students included:
  o System glitches
  o Log on difficulties
  o Professor didn’t use
  o Password problems
  o Downloading large files

**Overall Impact of Online Materials and Learning Activities**

Faculty and students are making significant strides incorporating MyGateway into the learning process. The use of MyGateway is leading to changes in how students and instructors define their respective roles in the classroom. Online learning components offered via MyGateway exert a positive influence on students’ perceptions. The research team notes the following implications in the data.

**Behavior and Perception**

• Knowing their grades and current standing leads students to modify their study habits
• MyGateway is increasingly characterized as a learning aid, making education accessible and providing “freedom”
• MyGateway creates a sense of belonging with the campus, keeping up with events, programs and news
• A few students consider class attendance “optional” with the availability of back-up class materials on MyGateway
Learning and Technology

- Accessing information: downloading files, accessing computers, logging on, all are important to the learning process
- Students who don’t like to use MyGateway say that professors are too dependent on MyGateway, too lazy to teach. They are struggling with no home computer and criticize too many links and too much information
- Classrooms are changing. Asynchronous learning activities completed outside the classroom are becoming more the norm. Students self-report more time spent on course materials and activities in high use classes. This has been the case for the past several semesters.

Implications and recommendations drawn from the data will continue to guide technology planning and support provided by Information Technology Services and UM-St. Louis academic administration. Future support and training will focus on those things that will help improve our students’ learning outcomes and satisfaction in blended learning classes. Additionally, insights drawn from the data can help UM-St. Louis continue to refine the blend of traditional face-to-face classroom experience with online resources.

The MyGateway evaluation team included Cheryl Bielema, Larry Irons, Robert Keel, and Linda Benson.

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Comprehensive Evaluation of MyGateway Use by Faculty and Students

Report of FS 2003

Purpose

The ongoing evaluation of technology-enhanced credit courses, making use of the course management tool, MyGateway, documents the experiences of two key stakeholders: enrolled students and teaching faculty. The questions and subsequent analyses here identify essential support strategies for faculty who use technology to improve learning experiences for students. Objectives include:

- Development of a baseline profile of UMSL students’ computing capabilities and sophistication,
- Documentation of the use of MyGateway features by selected faculty in FS 2003, and,
- Indicators of optimal teaching and learning interactions between and among faculty and students.

Methodology

A stratified random sample (7.5 percent of "active" courses within MyGateway) was selected according to levels of faculty use of the course management tool MyGateway [total courses=816]. The number of courses randomly selected=62; those participating=57. An additional targeted sample consisted of the total population of MyGateway courses involving ITV and Internet classes (N=37). This semester we measured daily instructor access of 12 key content and administrative areas along with student activity. Measurement was taken on October 5, 2003. Courses with instructor ranking above the mean were considered high use courses, and course with instructor rankings below the mean were considered low use courses. Faculty were contacted for participation and scheduled for in-class completion of the questionnaires during the evaluation period, November 10-December 8, 2003.

Completed surveys by undergraduate and graduate students numbered 1373 (43.7% response rate) [approximate enrollment in sample=3142]. Low use courses numbered 35; high use courses numbered 59. Students in 6 of the randomly selected courses, and all (37) of the targeted ITV/Internet only courses were offered the online survey. Five courses in the original selected sample were not included in the student survey. The reasons varied -- either the courses were already completed (8-weeks only) and students were not longer identifiable or faculty declined to participate.

Students responding in high use courses numbered 889, while 484 students in low use courses responded. Of the total number of respondents, 296 completed online surveys. The response rate was substantially lower for the online surveys (33.9%) than for face-to-face surveying (47.5%).

Areas of questions included in the MyGateway Student Survey were:

- Computing and Internet Access Capabilities
- Learning Tasks Compared in Courses using MyGateway and Those NOT Using MyGateway
- Individual Experiences Using Electronic Media for Course Activities and Communication
- Degree Completion Intent
Profile of Students Responding (Low Use/High Use)

The students in this stratified random sample are at various levels of academic endeavor. In response to the question “do you intend to complete a degree,” 31.2% of students in low use courses marked YES, while 60.0% of students in high use courses marked YES. Table 1 lists the numbers of credit hours completed by the students responding.

Table 1 Credits Completed At UM-St. Louis

<table>
<thead>
<tr>
<th>Credit Hours</th>
<th>%FS03 (Low)</th>
<th>% FS03 (High)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15</td>
<td>11.2</td>
<td>24.6</td>
</tr>
<tr>
<td>16-30</td>
<td>4.5</td>
<td>9.0</td>
</tr>
<tr>
<td>31-45</td>
<td>4.7</td>
<td>7.4</td>
</tr>
<tr>
<td>46-60</td>
<td>4.0</td>
<td>5.9</td>
</tr>
<tr>
<td>More than 60</td>
<td>10.2</td>
<td>18.5</td>
</tr>
</tbody>
</table>

The highest percentages (combined total, 35.8%) of this sample of students are in their first year at UM-St. Louis, having completed up to 15 hours course work. The second highest group (combined total, 28.7% of students responding) indicates more than 60 hours completed.

Computers and Access for Students

Technology requisites are a computer and Internet access. Students were asked to check primary computer access and capabilities they had available. Types of Computer, Primary Access Location, and Type of Internet Connection are the three tables that follow.

Over the course of the survey period, Fall 2001 to Fall 2003, an increasing percentage of the respondents have reported owning a new computer (e.g., Pentium). Over 65% in fall 2003 compares to just over 61% in the prior semester. Slightly fewer students in low use courses than those in the high use courses indicated having the newer computers. Students owning older computer were in the range reported in previous years. Those owning a Macintosh have not varied much from semester to semester -- within the range of 2.4%-4.4%. Other computers represented 15%, a higher percentage than previous students in our survey sample.

The percent of students not owning a personal computer has varied from semester to semester. The range is a high of 16.5% in the first semester of surveying, FS 2000, to 12% in the current survey.

Table 2. Types of Computers Owned by Students

<table>
<thead>
<tr>
<th>COMPUTER TYPES</th>
<th>FS03</th>
<th>FS02</th>
<th>WS02</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC, Pentium or newer</td>
<td>65.8%</td>
<td>65%</td>
<td>61.6%</td>
</tr>
<tr>
<td>PC, 486 or older</td>
<td>5.0%</td>
<td>4%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Macintosh</td>
<td>3.0%</td>
<td>4%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Other</td>
<td>11.2%</td>
<td>15%</td>
<td>10.8%</td>
</tr>
<tr>
<td>No personal computer</td>
<td>10.0%</td>
<td>12%</td>
<td>9.8%</td>
</tr>
</tbody>
</table>

Students in the High Use and Low Use courses had very similar access to the Internet. High use students were dialing in via a modem and from computer labs or student housing with slightly
greater frequency than students in low use courses. Over time, there has been a steady increase in access from home and work, with a slightly lower percentage using on campus computer labs.

Table 3. Primary Access Location

<table>
<thead>
<tr>
<th>INTERNET ACCESS LOCATION</th>
<th>FS03</th>
<th>FS02</th>
<th>WS02</th>
<th>WS01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home/Work</td>
<td>68.4%</td>
<td>66.0%</td>
<td>62.0%</td>
<td>65.0%</td>
</tr>
<tr>
<td>On campus</td>
<td>23.6%</td>
<td>25.7%</td>
<td>25.3%</td>
<td>31.0%</td>
</tr>
<tr>
<td>Student Housing</td>
<td>6.7%</td>
<td>5.6%</td>
<td>7.7%</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>1.25%</td>
<td>2.0%</td>
<td>5.0%</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

If a student’s primary access was from off campus, they were asked specifics about the type of Internet connection: dial-up telephone via modem, dial up with DSL, cable modem, or other. See Table 4 for connection details of both groups.

The respondents from high use courses were connected to the Internet in greater proportions than those reporting from low use courses. Broadband connections to the Internet (e.g., DSL and cable modems) have increased overall, with DSL outpacing cable modems in both groups. Slightly over half of this student sample has broadband capabilities (50.7%), compared to 37.4% of the student sample one year ago.

Table 4. Type of Internet Connection to UMSL Servers

<table>
<thead>
<tr>
<th>INTERNET CONNECTION</th>
<th>LOW USE FS03</th>
<th>HIGH USE FS03</th>
<th>TOTAL FS03</th>
<th>LOW USE FS02</th>
<th>HIGH USE FS02</th>
<th>TOTAL FS02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dial-up Modem</td>
<td>16.6%</td>
<td>32.7%</td>
<td>49.3%</td>
<td>27.2%</td>
<td>35.4%</td>
<td>62.6%</td>
</tr>
<tr>
<td>DSL</td>
<td>11.2%</td>
<td>19.0%</td>
<td>30.2%</td>
<td>9.5%</td>
<td>11.3%</td>
<td>20.8%</td>
</tr>
<tr>
<td>Cable Modem</td>
<td>5.9%</td>
<td>10.8%</td>
<td>16.7%</td>
<td>4.8%</td>
<td>8.1%</td>
<td>12.9%</td>
</tr>
<tr>
<td>Other (Work LAN)</td>
<td>1.6%</td>
<td>2.2%</td>
<td>3.8%</td>
<td>2.0%</td>
<td>1.7%</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

Satisfaction with individual Internet access speed was questioned. Almost 76% of students indicated they were satisfied with speed of Internet access overall. Comparing high use and low use responses revealed greater satisfaction among the high use group than the low use group. That is no doubt a result of broadband utilization by a growing number of students.

Table 5. Satisfaction with Personal Internet Access Speed

<table>
<thead>
<tr>
<th>SATISFACTION WITH ACCESS SPEED</th>
<th>LOW USE</th>
<th>HIGH USE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied to Very Satisfied</td>
<td>26.9%</td>
<td>48.9%</td>
<td>75.8%</td>
</tr>
<tr>
<td>Dissatisfied to Very Dissatisfied</td>
<td>8.3%</td>
<td>15.9%</td>
<td>24.2%</td>
</tr>
</tbody>
</table>

Learning With MyGateway

We examined the relationship of access location, connection type, and MyGateway use to student perceptions of MyGateway by:
1) distinguishing students who primarily use MyGateway on campus from those who primarily use it off campus

2) distinguishing broadband users from dial-up users

3) distinguishing low-use from high-use classes.

We used an independent samples t-test to analyze each of these independent variables (access location, connection type, and use) in relation to specific items from the MyGateway survey for Fall Semester 2003 (see Appendix A). In particular, our focus is on the degree to which each independent variable predicts responses on items designed to measure the following dependent variables: Learning Activity (questions 1, 7, 10 – 14, 17), Student Satisfaction (questions 29, 31 - 34), Student/Teacher Communication (questions 8, 9, 15, 16, 28), Perceived Learning Outcome (questions 18, 25, 27), and Usability (questions 20 -24).

Access Location and MyGateway Student Evaluations

Our first concern in analyzing access location is to examine its predictive relationship to the responses of students using MyGateway. To the extent that students must travel to campus to use computers with access to the network, we expect those students to experience disadvantage in learning activities, lower satisfaction, and poorer student/teacher communication. Specifically, our interest is in examining the relationship of access location (either on campus or off campus) to students’ responses to items relating to Learning Activity, Student Satisfaction, and Student/Teacher Communication.

<table>
<thead>
<tr>
<th>Question</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q15</td>
<td>-2.455</td>
<td>1299</td>
<td>.014</td>
<td>-.26</td>
<td>.11</td>
</tr>
<tr>
<td>Q20</td>
<td>-2.782</td>
<td>1314</td>
<td>.005</td>
<td>-.26</td>
<td>.095</td>
</tr>
<tr>
<td>Q21</td>
<td>-5.789</td>
<td>1306</td>
<td>.000</td>
<td>-.58</td>
<td>.099</td>
</tr>
<tr>
<td>Q22</td>
<td>-3.58</td>
<td>1286</td>
<td>.000</td>
<td>-.36</td>
<td>.099</td>
</tr>
<tr>
<td>Q23</td>
<td>-3.62</td>
<td>1297</td>
<td>.000</td>
<td>-.31</td>
<td>.086</td>
</tr>
<tr>
<td>Q24</td>
<td>-3.40</td>
<td>1291</td>
<td>.001</td>
<td>-.39</td>
<td>.12</td>
</tr>
<tr>
<td>Q31</td>
<td>-2.087</td>
<td>1300</td>
<td>.037</td>
<td>-.24</td>
<td>.12</td>
</tr>
</tbody>
</table>

Table 6: Access Location Items (Independent Samples T-Test)

Questions 15, 20-24, and 31 each resulted in scores with significant relationships (p < .05) between the access location of students and their response. Students accessing MyGateway from locations off campus were more likely to respond negatively to question 15 (“Because of using MyGateway I was more likely to communicate with my instructor.”). In other words, those students accessing from off campus locations did not think MyGateway increased their communication with instructors.

Questions 20-24 deal with what we label as usability: “Because the instructor required the computer and MyGateway: (Question 20) I spent too much time learning to use MyGateway, (Question 21) I spent too much time trying to gain access to a computer, (Question 22) I spent too much time trying to log on to UMSL’s computer network, (Question 23) I was at a disadvantage because I did not possess enough computer skills, and (Q24) I increased my computer skills.” Off-campus students were more likely to agree with the negative statements (Questions 20-23) and disagree with the positive statement (Q24) than on-campus students.
Students accessing MyGateway from off campus were more likely to agree with question 31 ("It takes more effort to complete a course that uses online resources like MyGateway") than their counterparts who access MyGateway from on-campus.

We expected the flexibility and increased interactivity afforded off-campus students through online course management systems to enhance their satisfaction with, and interaction in, class activity. The current findings do not support this assumption. In addition, last year's survey indicated that students accessing MyGateway from on-campus were more likely to report interacting with other students in the course. Although this particular finding was not confirmed in this year’s survey, the general impression is that dissatisfaction levels are higher for off-campus students, regardless of the degree of use of MyGateway. In order to understand this phenomenon, we analyzed student responses based on the type of Internet connectivity they use to access MyGateway.

**Connectivity Type and MyGateway Student Evaluations**

<table>
<thead>
<tr>
<th>Question</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9</td>
<td>-2.47</td>
<td>1173</td>
<td>.014</td>
<td>-.29</td>
<td>.081</td>
</tr>
<tr>
<td>Q22</td>
<td>-2.902</td>
<td>1185</td>
<td>.004</td>
<td>-.28</td>
<td>.073</td>
</tr>
<tr>
<td>Q24</td>
<td>-2.659</td>
<td>1191</td>
<td>.008</td>
<td>-.30</td>
<td>.08</td>
</tr>
<tr>
<td>Q28</td>
<td>2.35</td>
<td>1199</td>
<td>.019</td>
<td>.27</td>
<td>.084</td>
</tr>
<tr>
<td>Q31</td>
<td>-2.385</td>
<td>1199</td>
<td>.017</td>
<td>-.26</td>
<td>.08</td>
</tr>
</tbody>
</table>

Table 7: Connectivity and Student Satisfaction (Independent Samples T-Test)

Here we find that dial-up users are significantly more likely than broadband users to agree with the negative questions 22, 24, and 31 from above, as well as disagree with Q9 ("Because of using MyGateway I was more likely to discuss ideas from this course with other students.") and Q28 (In general, I prefer communicating with my instructor via [personal] email, outside MyGateway.).

Dial-up users experience a general problem with the slower connection speeds and, as a result, are more frustrated in working on courses that require any amount of Internet activity.

**Level of Use and MyGateway Student Evaluations**

In addition to access location, the survey items allow us to analyze differences between students in classes with low use of MyGateway and students in classes with high use. Our working hypothesis is that increased exposure to classes using MyGateway results in higher degrees of learning activity, satisfaction, and student/teacher communication.
Use Of MyGateway In Relation To Learning Activity

<table>
<thead>
<tr>
<th>Question</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q6</td>
<td>4.687</td>
<td>1296</td>
<td>.000</td>
<td>.48</td>
<td>.086</td>
</tr>
<tr>
<td>Q7</td>
<td>2.104</td>
<td>1276</td>
<td>.036</td>
<td>.22</td>
<td>.09</td>
</tr>
<tr>
<td>Q10</td>
<td>6.99</td>
<td>129</td>
<td>.000</td>
<td>.72</td>
<td>.095</td>
</tr>
<tr>
<td>Q11</td>
<td>4.896</td>
<td>1245</td>
<td>.000</td>
<td>.55</td>
<td>.094</td>
</tr>
<tr>
<td>Q12</td>
<td>5.378</td>
<td>1291</td>
<td>.000</td>
<td>.54</td>
<td>.092</td>
</tr>
<tr>
<td>Q13</td>
<td>4.95</td>
<td>1290</td>
<td>.000</td>
<td>.49</td>
<td>.092</td>
</tr>
<tr>
<td>Q14</td>
<td>4.45</td>
<td>1283</td>
<td>.000</td>
<td>.46</td>
<td>.089</td>
</tr>
<tr>
<td>Q17</td>
<td>3.842</td>
<td>1307</td>
<td>.000</td>
<td>.31</td>
<td>.076</td>
</tr>
</tbody>
</table>

Table 8: Learning Activity Items (independent samples t-test)

Every Learning Activity item measured by the MyGateway survey indicates that students in low use classes are more likely (p < .05) to disagree with positive statements about learning activities in MyGateway classes. Thus, students in classes with high use of MyGateway were more likely to seek clarification when they did not understand something (Question 6), review lecture notes for clarification (Question 7), actively participate in the course (Question 10), work on assignments with other students (Question 11), complete assignments on time (Question 12), access other online materials related to course content (Question 13), spend more time studying for the course (Question 14), and refer to the course syllabus (Question 17).

Use of MyGateway in Relation to Satisfaction

<table>
<thead>
<tr>
<th>Question</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q29</td>
<td>8.465</td>
<td>1308</td>
<td>.000</td>
<td>.87</td>
<td>.095</td>
</tr>
<tr>
<td>Q31</td>
<td>3.22</td>
<td>1300</td>
<td>.001</td>
<td>.36</td>
<td>.085</td>
</tr>
<tr>
<td>Q33</td>
<td>3.484</td>
<td>1287</td>
<td>.001</td>
<td>.40</td>
<td>.096</td>
</tr>
<tr>
<td>Q34</td>
<td>3.63</td>
<td>1270</td>
<td>.000</td>
<td>.42</td>
<td>.097</td>
</tr>
</tbody>
</table>

Table 9: Satisfaction Items (independent samples t-test)

Four items (questions 29, 31, 33, and 34) related to student satisfaction with courses using MyGateway indicate that students in low use classes are more likely (p < .05) to disagree with positive statements about their satisfaction with MyGateway classes. Responses to question 32 are uniformly skewed towards agreement with the statement (“I would like to have MyGateway used in other courses”) regardless of degree of use. This finding follows the trend we noted in our analysis of last year’s survey. In the surveys conducted in 2001 and 2002, responses were predicted by use level as well.

Students in high use courses were more likely to agree with question 29 (“I am very satisfied with this course because it used MyGateway”). This finding confirms previous responses to the question. For question 31 (“It takes more effort to complete a course that uses online resources like MyGateway” we see a new differentiation between students in high and low use classes with students in low use classes being more likely to disagree with the negative statement. For questions 33 and 34 however, a pattern from the fall 2002 survey continues; student in high use courses were more likely to agree with question 33 (“I am more likely to take another course at UMSL because it uses MyGateway) and with question 34 (“I am more likely to complete my
degree at UMSL because of the advantages of using MyGateway in my courses”). In other words, students in high use courses are motivated by their degree of use of MyGateway to take other courses and complete their degree program.

Use of MyGateway in Relation to Student/Teacher Communication

<table>
<thead>
<tr>
<th>Question</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8</td>
<td>4.672</td>
<td>1287</td>
<td>.000</td>
<td>.48</td>
<td>.092</td>
</tr>
<tr>
<td>Q9</td>
<td>9.088</td>
<td>1267</td>
<td>.000</td>
<td>1.04</td>
<td>.095</td>
</tr>
<tr>
<td>Q15</td>
<td>5.407</td>
<td>1299</td>
<td>.000</td>
<td>.56</td>
<td>.093</td>
</tr>
<tr>
<td>Q16</td>
<td>6.618</td>
<td>1293</td>
<td>.000</td>
<td>.66</td>
<td>.095</td>
</tr>
</tbody>
</table>

Table 10: Student/Teacher Communication Items (independent samples t-test)

Four items related to student/teacher communication in courses using MyGateway indicate that students in low use classes are more likely (p < .05) to disagree with positive statements about their degree of communication with faculty in MyGateway classes. Thus, students in classes with high use of MyGateway were more likely to agree that they were able to receive instructor comments on assignments quickly (Question 8), discuss ideas with other students (Question 9), communicate with their instructor (Question 15), and (a new trend) receive feedback on quizzes and exams quickly (Question 16); the latter point is indicative of the increasing use of online assessments in MyGateway.

Use of MyGateway in Relation to Perceived Learning Outcomes

<table>
<thead>
<tr>
<th>Question</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q18</td>
<td>10.485</td>
<td>1186</td>
<td>.000</td>
<td>1.37</td>
<td>.13</td>
</tr>
<tr>
<td>Q25</td>
<td>5.479</td>
<td>1292</td>
<td>.000</td>
<td>.58</td>
<td>.091</td>
</tr>
<tr>
<td>Q27</td>
<td>7.456</td>
<td>1324</td>
<td>.000</td>
<td>.75</td>
<td>.09</td>
</tr>
</tbody>
</table>

Table 11: Perceived Learning Outcome by Use (independent samples t-test)

Three items in the survey are designed to measure student perceptions of learning outcomes. Questions (18, 25, and 27) indicate that students in low use courses are more likely (p < .05) to disagree with positive statements about their learning outcomes, with students in high use courses more likely to agree with those same statements. Thus, students in high use courses were more likely to agree with question 18 “Learn course content because the instructor used online quizzes (another new pattern), question 25 “I was better able to understand the ideas and concepts taught in this course,” and question 27 “Using MyGateway contributed to my learning.”

Use of MyGateway by Usability

<table>
<thead>
<tr>
<th>Question</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q21</td>
<td>2.259</td>
<td>1306</td>
<td>.024</td>
<td>.22</td>
<td>.075</td>
</tr>
<tr>
<td>Q24</td>
<td>2.557</td>
<td>1291</td>
<td>.011</td>
<td>.29</td>
<td>.095</td>
</tr>
</tbody>
</table>

Table 12: Usability (independent samples t-test)

Two items relating to usability, questions 21 and 24 also indicate that students in low use classes were more likely to disagree with a negative question, “I spent too much time trying to gain
access to a computer” (Question 21) and disagree with the positive question, “I increased my computer skills” (Question 24).

Discussion

The data presented above indicate that increased use of MyGateway results in higher estimates of learning activity, higher degrees of satisfaction, more student/teacher communication, and a perception of increased learning outcomes. Additionally, the data suggests that increased use of online assessments contributes positively to student perceptions of satisfaction and learning outcomes, and that increased use of MyGateway contributes to students’ sense of technical competence, and is also beginning to create some basic access issues. The data from the current MyGateway survey lend support to the conclusions reached in the survey analysis of 2001 and 2002; the more students are exposed to MyGateway the higher their estimation of its positive affects, and the more likely they are to continue (and complete) their education at UM-St. Louis. In fact, what we document with this analysis is that the positive effects not only are simply remaining consistent, but increasing positively with use of MyGateway in the classroom and throughout the campus.

Benefits of Using MyGateway

Most students described more specific experiences in using MyGateway by responding to open-ended questions: “what are the benefits of using MyGateway,” and “did you have any problems using MyGateway?” Results discussed above are both corroborated and made more explicit by individual students’ comments in the following section. In an attempt to isolate similarities and differences in the types of problems encountered by these two groups of students, the comments were sorted in an iterative fashion, starting first with the research team separately determining categories. After categories were established, manual counts were done per category. Responses applicable to more than one category were counted in each.

Table 13. Benefits to Students (Total Group)

<table>
<thead>
<tr>
<th>Benefits</th>
<th>High Use</th>
<th>Low Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowing Grades</td>
<td>22.2%</td>
<td>21.8%</td>
</tr>
<tr>
<td>Availability of Class Materials</td>
<td>17.3%</td>
<td>24.1%</td>
</tr>
<tr>
<td>CMS Fast and Easy to Use</td>
<td>13.3%</td>
<td>13.4%</td>
</tr>
<tr>
<td>Ease of Communication</td>
<td>12.6%</td>
<td>13.4%</td>
</tr>
<tr>
<td>Announcements and Updates</td>
<td>10.2%</td>
<td>8.6%</td>
</tr>
<tr>
<td>Accessibility of Instructor/Other Students</td>
<td>6.0%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Availability of Syllabus, 24/7</td>
<td>5.4%</td>
<td>4.7%</td>
</tr>
</tbody>
</table>

Access to grade information provides students with critical information that allows them to track their status in a particular course. This is the first time “knowing grades” ranked at the top of the perceived benefits list and indicates that students are becoming more aware of the value of MyGateway in keeping them informed as to their progress in a course. We expect that this information will allow students to modify work habits in order to maximize their performance in their courses.
“Availability of class materials” was an important benefit to students in Low Use classes. It was number one on their list; however, in combining the two groups’ totals, class materials took second position. Students in Low Use classes also ranked “ease of communication” slightly higher than did their High Use classmates.

Problems in Using My Gateway

The most frequent response to the question, “Did you have any problems using MyGateway?” was “No Problem” (High Use N=385; Low Use N=223). Responses of “no problem” increase with each successive survey. The problems listed are much lower in frequency and are similar for students in both high and low use classes. Problems noted among this sample of students are system glitches, log on difficulties (both, timing out of their Internet Service Providers access and password problems), in addition to noting that their instructors did not use MyGateway to the extent they would like it used. Additionally, inconvenient or no home access to computers, downloading and printing of specific files were problematic to a small group of students.

Table 15. Problems Encountered by Students (Total Group)

<table>
<thead>
<tr>
<th>Problems</th>
<th>High Use</th>
<th>Low Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Problems</td>
<td>71.8%</td>
<td>70.4%</td>
</tr>
<tr>
<td>System Glitches</td>
<td>5.4%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Log On Difficulties</td>
<td>3.3%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Professor Didn’t Use</td>
<td>3.0%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Inconvenient/ No Access to</td>
<td>3.0%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Computer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Password Problems</td>
<td>2.8%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Downloading PPT, PDF, Other</td>
<td>2.6%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Docs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To emphasize the experiences of students in using the course management system MyGateway in their courses, here are problems and benefits stated “in their own words.”

Problems, in their own words

- “Every now and then it takes a little time to access My Gateway and sometimes, the system will tell me incorrect password when I know it is right.”

- “I had an awful time trying to dial into UMSL computer system. It would kick me out repeatedly and I had several viruses in my computer from UMSL.”

- “The only problem I had was starting the course. I did not receive any instructions on how to get started. You need to be more specific in your introductory email about how everything works for first time users of My Gateway. Once I got going, no problems.”

- “My computer at home is not really equipped to handle an online class and i don't have money in the budget to purchase a new one or upgrade it, so I still have to find time to use the computer lab while it is open. I use the one at South County education campus. The ones at UMSL are an hour away from me, and I don't usually come to campus.”

- “I had never received a welcome/information packet, which made it very stressful in the beginning. Once I spoke with the computer specialist things began to get better.”
Benefits, in their own words

- "The ability to access and complete assignments at my own pace."
- "I can access anytime from any computer to see my grades, any emails from instructors, students and any other school information that I would need. It gives much information about school activities, what going on."
- "I can stay in contact with fellow students for clarification and input. It does keep me up to date on what is going on with my class. I check MyGateway daily which keeps me in the know of what is going on."
- "Communication, communication, communication... easy to talk to students and instructors... ability to check my grade at anytime."

Ideas for Improvement

Students were asked to make suggestions for improvement to the instructor of their course. Improvement ideas, overall, centered on increasing use of MyGateway by instructors (n= 244) for both groups. An eloquent comment summarizes many of the suggestions regarding increased use by instructors: "It's not mygateway, it's the way in which teachers use it."

Addressing the initial MyGateway learning curve for students new to campus with orientation materials or face-to-face workshops (n=21) came in as second most frequently-mentioned improvement. Other ideas included:

- Make [it] mandatory for professors to post grades of assignments and tests
- Lecture notes available online, in advance of class periods
- Increase interactive learning (e.g., discussion about lectures, online exercises, discussion forum to prepare for exams)
- Make sure posted materials print properly
- More online access to articles; less reserve library articles
- Give more instruction on how to: take quizzes, use discussion board and chat
- Improve physical look and navigation of MyGateway
- Better naming of categories so I can find specific materials easily.

Overall Impact of Online Materials and Learning Activities

Faculty and students are making significant strides incorporating MyGateway into the learning process. The use of MyGateway is leading to changes in how students and instructors define their respective roles in the classroom, and online learning components offered via MyGateway are exerting a positive influence on students’ perceptions. Following are several implications drawn from the current data.

Behavior and Perception

- Knowing their grades and current standing leads students to modify their study habits—the ready availability of course related materials on MyGateway allow students to follow through on these changes at their own pace.
• MyGateway is increasingly characterized as a learning aid, making education accessible and providing individual “freedom”
• MyGateway creates a sense of belonging across the campus. Not only are students keeping up with events, programs and news, but they are coming to view themselves as part of a “learning community.”
• A few students consider class attendance “optional” with the availability of back-up class materials on MyGateway. We would expect this trend to continue as instructors offer key resources online. This signals the beginning of a shift in what students and faculty perceive to be the relevance of face-to-face interaction, and offers an opportunity for instructors to rethink the structure of classroom interaction.

Learning and Technology

• Accessing information: downloading files, accessing computers, logging on, all are important to the learning process
• Students who don’t like or use MyGateway say that professors are too dependent on MyGateway, too lazy to teach. They are struggling with no home computer and criticize too many links and too much information
• Classrooms are changing. Asynchronous learning activities to be completed outside the classroom are becoming more the norm. Students self-report more time spent on course materials and activities when MyGateway is used more intensely and often in their classes, for the past several semesters. Questions as to the “ideal” blending of face-to-face and online learning activities will continue to be asked.

Recommendations

Analysis of the data has exposed several levels of responsibility for increasing the efficiency of the course management system and for ensuring greater student satisfaction and success. Orientation materials and technical support guidelines must be updated to reflect the evolving nature of the Internet and newly available technologies, and be made available to both faculty and students (e.g., wireless zones and instructions for configuring laptops).

In addition, the positive effects of using MyGateway, as increasingly substantiated by our students, might be the topic for curricular discussions in Departments and Colleges at this University. The unique requirements of disciplines could be factored into the specific recommendations for MyGateway integration into courses.

Data continues to support the key role that faculty members have for orienting their students to MyGateway via their syllabi or while introducing the course. Answers to the following questions would help familiarize students early on: (1) what is MyGateway; (2) where do students find it via the UM-St. Louis home page; (3) how it is used in this course; (4) where do students get help with their technical problems?

Student Support Services Suggested

Comments by a small number of students indicated that they need multiple venues to get MyGateway help, especially at the onset of a semester. Knowing the technological requirements of a course and how to obtain assistance when problems occur, are important to students’ success. Preparing additional help documents and involving instructors in distributing a basic introduction to MyGateway or pointing their students to web-based assistance seem advisable. How to use wireless connections around campus was a need appearing for the first time in this study.

The current data revealed that students are expected to access and print a variety of documents for use in their courses. Many dial-up users are experiencing slow or interrupted access to
MyGateway course sites. This seems to be particularly problematic for dial-up users accessing large files, or who have limited periods of inactivity from their private Internet service providers. Additionally, system glitches and shut-downs on the Internet backbone and at private Internet service providers have increased in frequency since the onslaught of major viruses and e-mail spamming. Especially hard-hit have been campus email servers as, well as personal computers. Finally, a few students experience problems when attempting to print information from the “content frame” of a MyGateway class site. This problem could be related to variation in web browsers, as well as to inexperience in working with frame-based web page layouts.

Accessing MyGateway and other technical resources have become increasingly vital to student success and satisfaction with UM-St. Louis. Issues such low bandwidth, Internet connection stability, inconvenient or no computer access, and technical expertise are creating a “have-have not” disparity among our students. It will become increasingly important for administrators to deal with equalizing the access among students. Faculty must factor in the lowest common denominator for online instructional components.

**Administrative considerations:**
- Subsidized computer purchases for qualifying students
- Collaborative agreements with St. Louis area community colleges and/or high schools for computer lab access.
- Discounted broadband connection. Significant interest in UMSL provided broadband access is documented in the WS04 Instructional Computing surveys of faculty and students.

**Instructional Improvements Suggested**
Students continue to request most or all MyGateway features be used in all their courses. Depending on the subject matter, integrating more of the MyGateway components would help increase instructor-student interaction and increased interaction among students, according to this and previous student surveys.

Instructional improvements were also indicated in the following areas:
- Syllabi and assignments should be available on the individual course web sites. Further, the syllabus ought to include specific expectations for students’ online participation, guidelines to how an instructor intends to use MyGateway, as well as details for accessing technical assistance. A syllabus template is posted for faculty review on the Center for Teaching and Learning web page, [http://www.umsl.edu/ctl](http://www.umsl.edu/ctl).
- Descriptions for effectively and efficiently using discussion boards, quizzes, and virtual chats seem advisable to revise and/or publicize, in light of students’ questions about their use.
- Consistent organization of course materials was recommended. Planners of curricula should be working on common folders and documents to provide consistency among sections and courses in the various departments and colleges.
- Improvements in the course management software that powers MyGateway (Blackboard version 6.1; available for SS04) will assist in fine-tuning content areas to better match discipline-specific needs.

Implications and recommendations drawn from the data will continue to guide technology planning and support provided by Information Technology Services and UM-St. Louis academic administration. Future support and training will focus on those things that will help improve our students’ learning outcomes and satisfaction and help move our institution to fuller distance delivery of courses.

The MyGateway evaluation team included Cheryl Bielema, Larry Irons, Robert Keel, and Linda Benson. For further information about the results, please contact Cheryl Bielema (314.516.7134), email bielema@umsl.edu or Robert Keel (314.516.6052), email rok@umsl.edu.
Appendix A
University of Missouri-St. Louis
FS 2003 MyGateway Course Survey
MyGateway FS2003 Course Survey

Please complete the survey based on your experiences with MyGateway, the web course management tool. Most of the questions ask for one response (based on your priority or primary experience). **If a question is not applicable, please leave it blank.**

Your responses are anonymous. Your participation is completely voluntary, and you are free to refuse to answer any questions. UM-St. Louis Information Technology Services thanks you for your cooperation and participation. Your responses will be useful in the planning of student support and in the development of new technologies.

1. My primary location for accessing the Internet is (mark only one)
   A. On Campus (labs, library, MSC, and/or classrooms)
   B. Student Housing (Dorms, Meadows, Honors College)
   C. At Home
   D. At Work
   E. Other

2. If you own a computer that you use for school, please indicate what kind. If you don't own a computer, please leave blank and go to next question. (mark only one)
   A. 486 or older PC
   B. Pentium or newer PC
   C. Mac
   D. Other

3. If your primary access is through UMSL’s computer labs, how long do you usually wait for a computer? (mark only one)
   A. 0-5 minutes
   B. 6-15 minutes
   C. 16-30 minutes
   D. More than 30 minutes

4. If you connect to the Internet from off-campus, what type of Internet connection do you have?
   A. Dial-up modem
   B. DSL
   C. Cable Modem
   D. Work LAN

5. How satisfied are you with the speed with which your computer system connects to the Internet or World Wide Web?
   A. Very satisfied
   B. Satisfied
   C. Dissatisfied
   D. Very dissatisfied

For questions 6-19, please compare this course with other courses you have taken that did not use MyGateway. (Please indicate how strongly you agree or disagree with each statement by marking the corresponding letter according to the scale below).

Because of using MyGateway in this class (in comparison to courses that did not use MyGateway) I was more likely to:

6. Seek clarification when I did not understand something.
   Strongly Agree A B C D E F G Strongly Disagree
7. Review lecture notes to gain clarification.
   Strongly Agree
   
8. Receive instructor comments on assignments quickly.
   Strongly Agree
   
9. Discuss ideas from this course with other students.
   Strongly Agree
   
10. Actively participate in the course.
    Strongly Agree
    
11. Work on assignments with other students.
    Strongly Agree
    
12. Complete assignments on time.
    Strongly Agree
    
13. Access other online materials related to the content of this course.
    Strongly Agree
    
14. Spend more time studying for the course.
    Strongly Agree
    
15. Communicate with my instructor.
    Strongly Agree
    
16. Receive feedback on quizzes and exams quickly.
    Strongly Agree
    
17. Refer to course syllabus material.
    Strongly Agree

18. Learn course content because the instructor used online quizzes.
Strongly Agree A B C D E F G Strongly Disagree

19. Think more about course topics because of the online discussions.
Strongly Agree A B C D E F G Strongly Disagree

Because the instructor required the computer and MyGateway:

20. I spent too much time learning to use MyGateway.
Strongly Agree A B C D E F G Strongly Disagree

21. I spent too much time trying to gain access to a computer.
Strongly Agree A B C D E F G Strongly Disagree

22. I spent too much time trying to log on to UMSL's computer network.
Strongly Agree A B C D E F G Strongly Disagree

23. I was at a disadvantage because I did not possess enough computer skills.
Strongly Agree A B C D E F G Strongly Disagree

24. I increased my computer skills.
Strongly Agree A B C D E F G Strongly Disagree

25. I was better able to understand the ideas and concepts taught in this course.
Strongly Agree A B C D E F G Strongly Disagree

In general:

26. The instructor encouraged us to use MyGateway in this course.
Strongly Agree A B C D E F G Strongly Disagree

27. Using MyGateway contributed to my learning.
Strongly Agree A B C D E F G Strongly Disagree

28. I prefer communicating with my instructor via [personal] email, outside MyGateway.
29. I am very satisfied with this course because it used MyGateway.

30. I prefer using general web resources, outside My Gateway, when studying for a course.

31. It takes more effort to complete a course that uses online resources like MyGateway.

32. I would like to have MyGateway used in other courses.

33. I am more likely to take another course at UMSL because it uses MyGateway.

34. I am more likely to complete my degree at UMSL because of the advantages of using MyGateway in my courses.

We are interested in your specific experiences and suggestions for improving use of "MyGateway" at UMSL. Please answer Questions 35, 36 and 37 with as much detail as you wish to provide. Use additional paper if needed.

35. The personal benefits to me in using MyGateway are:

36. Did you have any problems using MyGateway? (If you had problems, please describe them briefly).

37. In your opinion, how can the use of MyGateway be improved for this course?

Your Academic Goals
38. do you plan to earn a degree from UMSL?
   A. Yes
   B. No

43. How many credits have you completed at UMSL?
   A. 0-15
   B. 16-30
   C. 31-45
   D. 46-60
   E. More than 60
Thank you for your responses!
Robert Keel and Dr. Cheryl Bielema
*MYGATEWAY* Support
Information Technology Services